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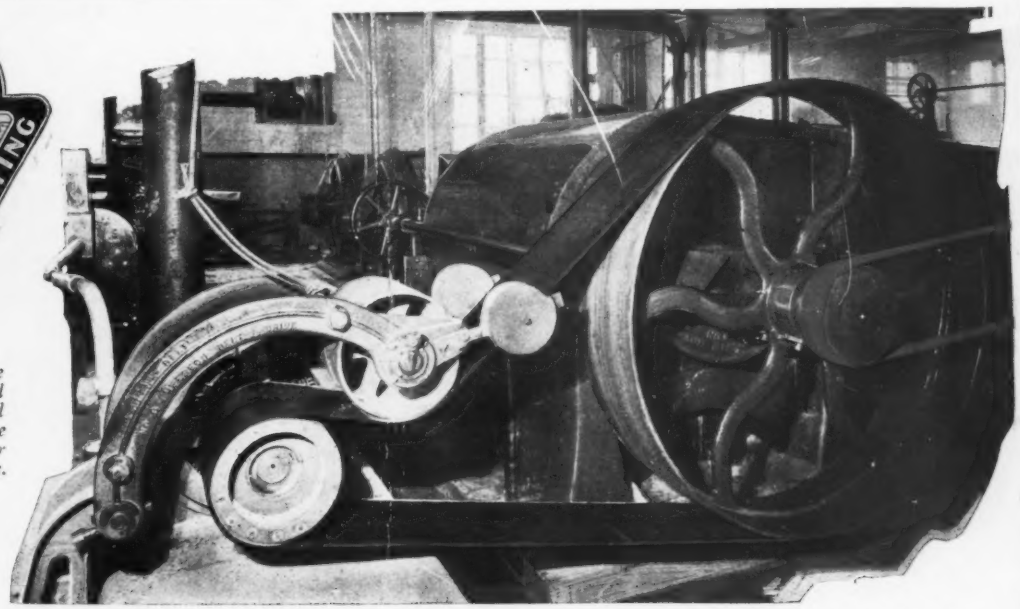
PAPER TRADE JOURNAL

Vol. LXXXV, No. 23 DECEMBER 8, 1927 Per annum $4.00 Per Copy 10 cents

SEA-LION WATERPROOF LEATHER BELTING



These belts are made the way a paper mill superintendent would make them were he to go into the leather belt making business.

Chicago Belting leather belts, made-by-the-pretested method, outlast and outwear any other belts on beater belt drives. An accomplishment that is the direct result of controlling production through scientific, impartial tests—which is the pre-tested method. Their service records entitle them to be considered as *the one belt* best adapted to these drives.

Made in oak and re-tan tannages.

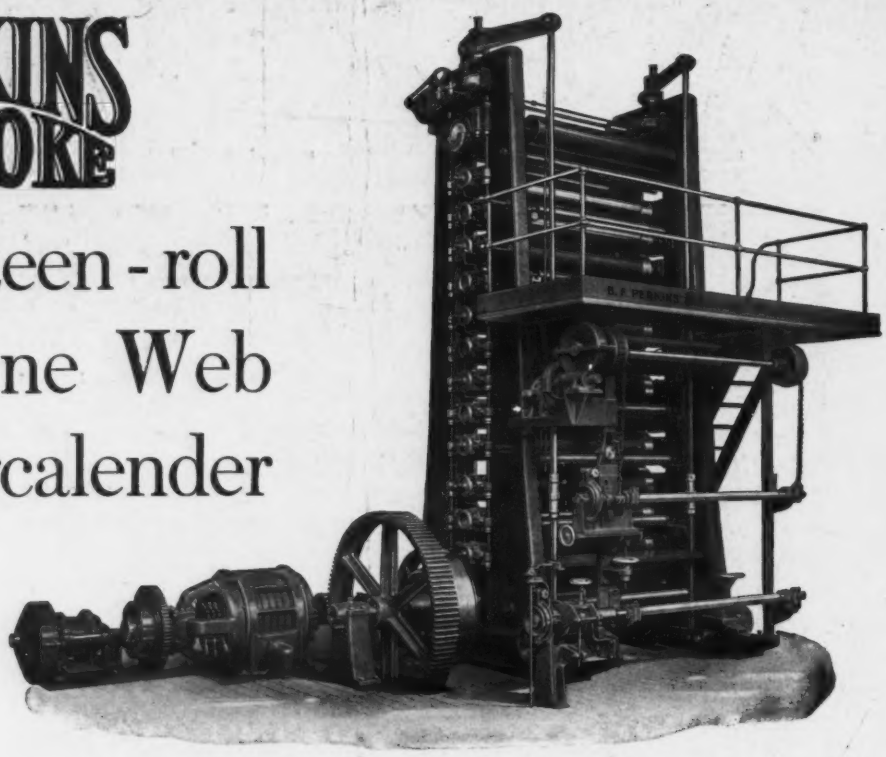
Chicago Belting Company
NEW YORK BOSTON PITTSBURG CLEVELAND MILWAUKEE ROCKFORD
Manufacturers of Leather Belting
130 NORTH GREEN STREET CHICAGO, U.S.A.
NEW ORLEANS LOS ANGELES SAN FRANCISCO PORTLAND, ORE. SEATTLE, WASH. ATLANTA

These belts bear the strongest of all guarantees. Fully described in our new 96-page catalog. Free to all paper mill men.

Chicago Belting

PERKINS HOLYOKE

Fourteen-roll Glassine Web Supercalender



The special requirements of glassine producers are met by this machine. A development of the Perkins standard Web Supercalender made for finishing plain and coated paper, and card stock. Direct connected two motors over running clutch drive.

Higher operating speed. Greater drying capacity.

B. F. Perkins & Son, Inc., Holyoke, Mass.

TRADE MARK REG. U.S. PAT. OFF.

COTTON ROLLS - PAPER ROLLS - EMBOSSING ROLLS - CHILLED IRON ROLLS - GRANITE PRESS ROLLS - WEB SUPERCALENDERS - GLASSINE SUPERCALENDERS - FRICTION CALENDERS EMBOSSING CALENDERS - SHEET CALENDERS - PLATERS - MULLEN PAPER TESTERS TENSILE TESTERS - VENTILATING FANS - RAG CUTTERS - STOCK CUTTERS - PAPER DAMPENERS BLEACH EJECTORS

Entered as second class matter August 13, 1925, at the Post Office at East Stroudsburg, Pa., under Act of Congress of March 3, 1879. ESTABLISHED 1872 FIFTY-SIXTH YEAR Published every Thursday by the Lockwood Trade Journal Co., at 34 N. Crystal St., E. Stroudsburg, Pa.
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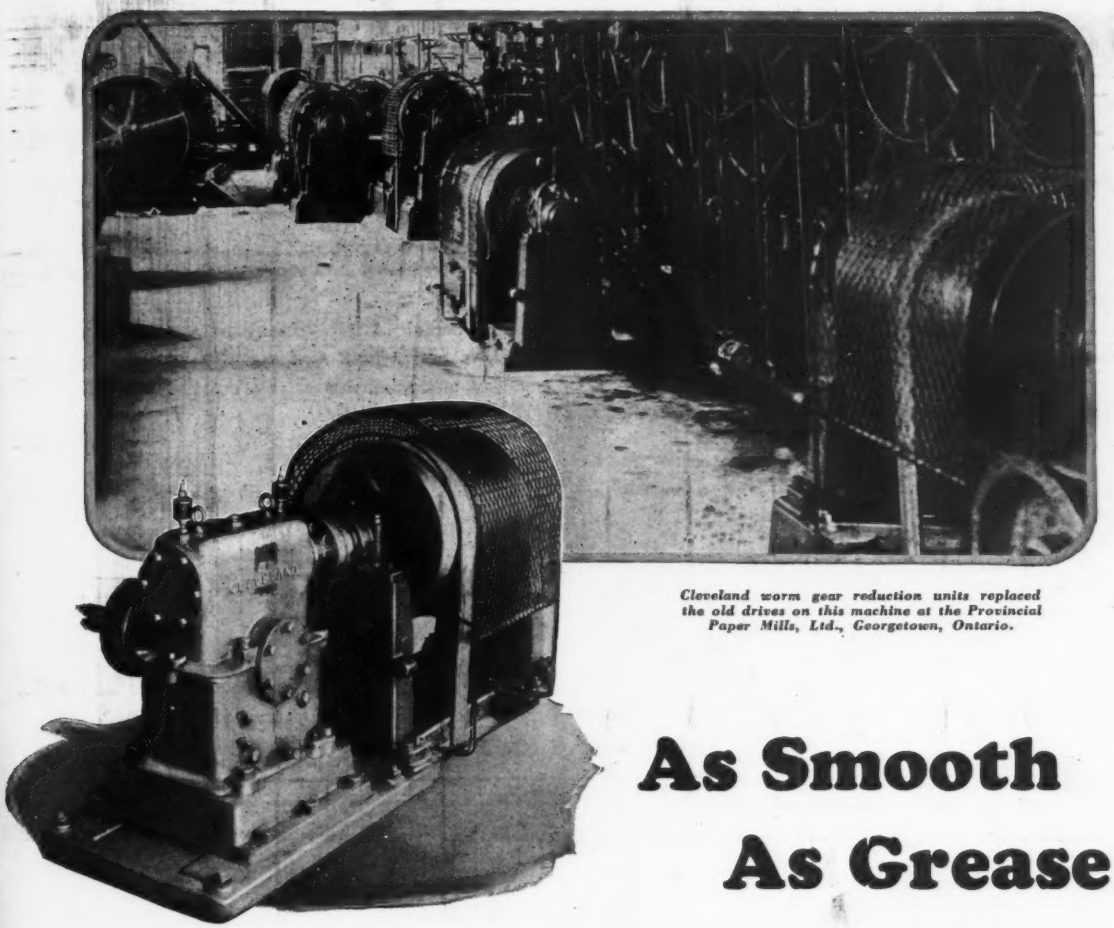


Cleveland worm gear reduction units replaced the old drives on this machine at the Provincial Paper Mills, Ltd., Georgetown, Ontario.

As Smooth As Grease

NO shocks—no jar—no jerks—on the machine that is driven through Cleveland worm gears. Just smooth, quiet, effortless transmission of power that insures high production, low maintenance costs and ultimate economy.

THE same kind of worm gearing that has proven so successful in motor trucks and is replacing other forms of gearing for the rear axles of passenger automobiles is available for driving the sections of your paper machine. It is the most highly-developed mechanism for the transmission of power at right angles.

CLEVELAND gears are operating machines making all grades of paper from tissue to boards and at all speeds up to the fastest newsprint machines. Actual operation for over five years has proven the success of Cleveland worm gearing for driving paper machines.

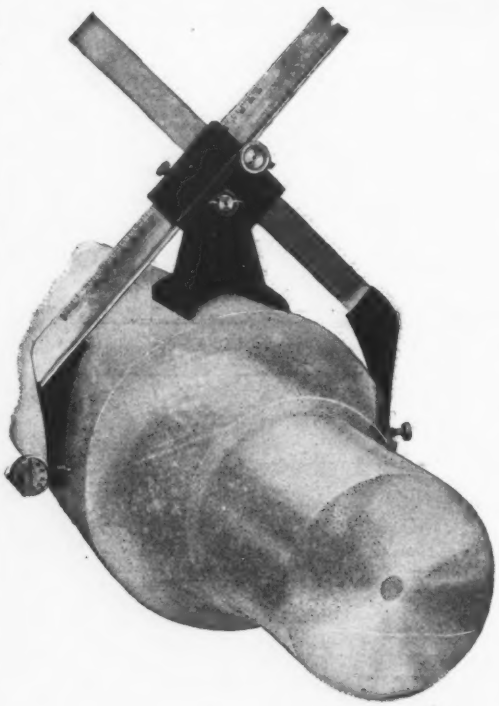
Cleveland TRADE MARK C.W.&G.C. WORM GEAR REDUCTION UNITS

The Cleveland drive can be built into your new machine or can replace your present drive at a reasonable cost and without any production delay. Your machine builder will give you detailed information about the Cleveland drive. Write us for Bulletin 106.

"Cleveland Worm Gearing—the Ultimate Drive"

CLEVELAND WORM & GEAR COMPANY

3291 EAST 80th STREET CLEVELAND, OHIO



LOBDELL

IMPROVED MICROMETER ROLL CALIPER

An indispensable instrument to the mill equipped to do its own regrinding and equally useful in every mill in keeping an accurate check on the condition of the calender and press rolls.

LIGHT WEIGHT
EASILY ADJUSTED
EXTREMELY ACCURATE

LOBDELL CAR WHEEL COMPANY
Established 1836
WILMINGTON, DELAWARE.

"*Don't Worry about DELIVERY, Jim.*"

ALKALI

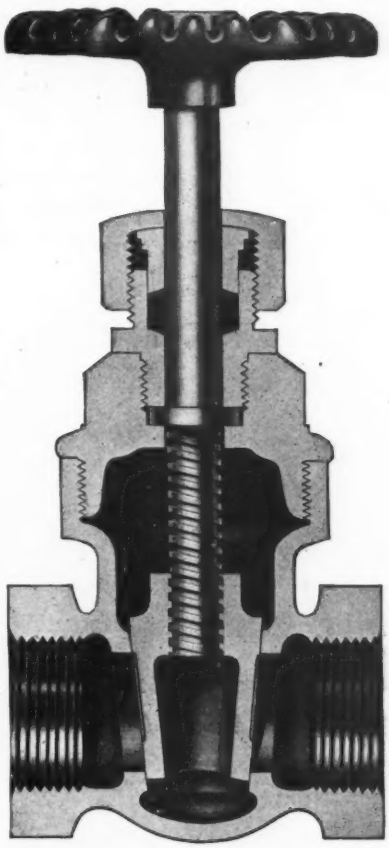
"Those Diamond Alkalies are carried in warehouse by distributors all over the country. In fact, there's a distributor of Diamond Alkalies right in this town. Your requisition is as good as delivered, so forget it".

"By the way Jim, I am dictating a letter to the Diamond Company for a carload of that Diamond 58% Soda Ash you said was so remarkably pure and uniform. Carloads, you know, are shipped direct from their plant at Painesville, Ohio".

DIAMOND ALKALI CO.

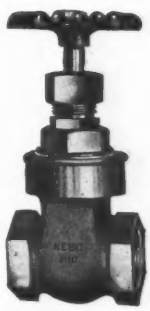
Pittsburgh, Pa. ***and everywhere!***

WALWORTH BRASS GATE VALVES



Cross Section Showing Gland

FOR 200 LBS. WORKING STEAM PRESSURE



THE "KEBO"

The "Kebo" is one of the old stand-bys of the Walworth line of brass gate valves. This enlarged cross sectional view shows its strong construction and the simplicity of its interior design.

The Kebo has a non-rising stem. The gate is a solid wedge.

This illustration shows the gland in the stuffing box which facilitates repacking under pressure when the valve is wide open.

Like all other Walworth Brass Gate Valves, the Kebo is individually tested before it is shipped from the factory.

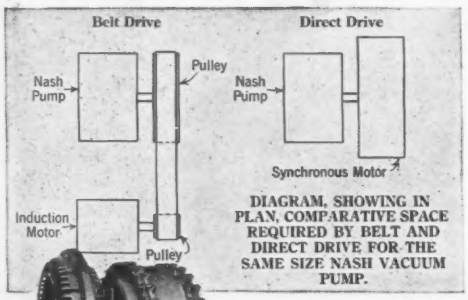
WALWORTH

Walworth Company, General Sales Offices: 51 East 42nd St., New York
Plants at Boston, Mass.; Kewanee, Ill.; Greensburg, Pa., and Attalla, Ala.

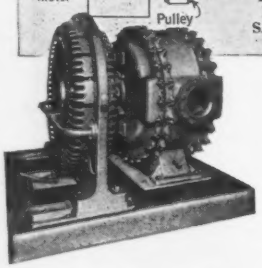
Distributors in Principal Cities of the World

Walworth Co., Limited, 10 Cathcart St., Montreal, P. Q.
Walworth International Co., New York, Foreign Representative

Direct synchronous motor drive is more compact



DIAGRAM, SHOWING IN PLAN, COMPARATIVE SPACE REQUIRED BY BELT AND DIRECT DRIVE FOR THE SAME SIZE NASH VACUUM PUMP.



Nash Hytor Vacuum Pump, direct connected to slow speed synchronous motor.

Nash Hytor Vacuum Pumps *can be direct connected* to slow speed synchronous motors. In fact, the rotor of the motor is mounted on the same shaft that carries the Nash Pump impeller.

As the diagram shows, this is a most compact arrangement.

NASH ENGINEERING COMPANY

164 Wilson Road — So. Norwalk, Conn.

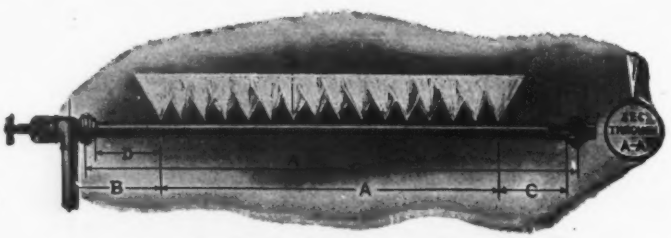
New England Representative
Mr. G. H. Gleason, Nottingham Bldg., Copley Square, Boston, Mass.

Western Representative
Mr. T. H. Savery, Jr., 80 E. Jackson Blvd., Chicago, Illinois.

Nash Hytor

VACUUM PUMPS AND COMPRESSORS

THE "RAINSTORM" SHOWER PIPE



MANUFACTURED BY

THE SMITH & WINCHESTER MFG. CO.

SOUTH WINDHAM, CONN.

ESTABLISHED 1828

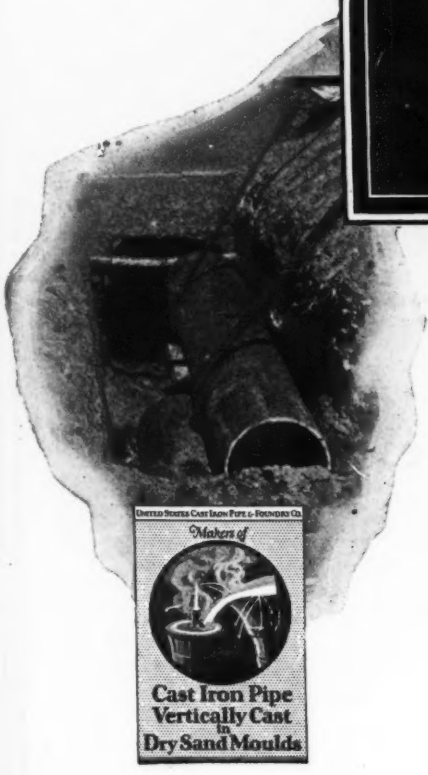
A Complete Line of Paper Bag Making Machinery

BUILDERS OF DEPENDABLE MACHINERY FOR THE PAPER MILL

The Undercut Trimmer

Die Cutting Presses

Installation for one of the largest gas companies in the middle west. 12" plain end deLavaud pipe with Dresser type couplings.



The smooth exterior of deLavaud Cast Iron Pipe makes it ideal for use with special couplings

IT has long been a standard practice to use couplings of the Dresser type for high pressure lines.

For water or natural gas lines this joint may be equipped with regular rubber gaskets. For lines conveying manufactured gas, lead tipped gaskets are generally specified.

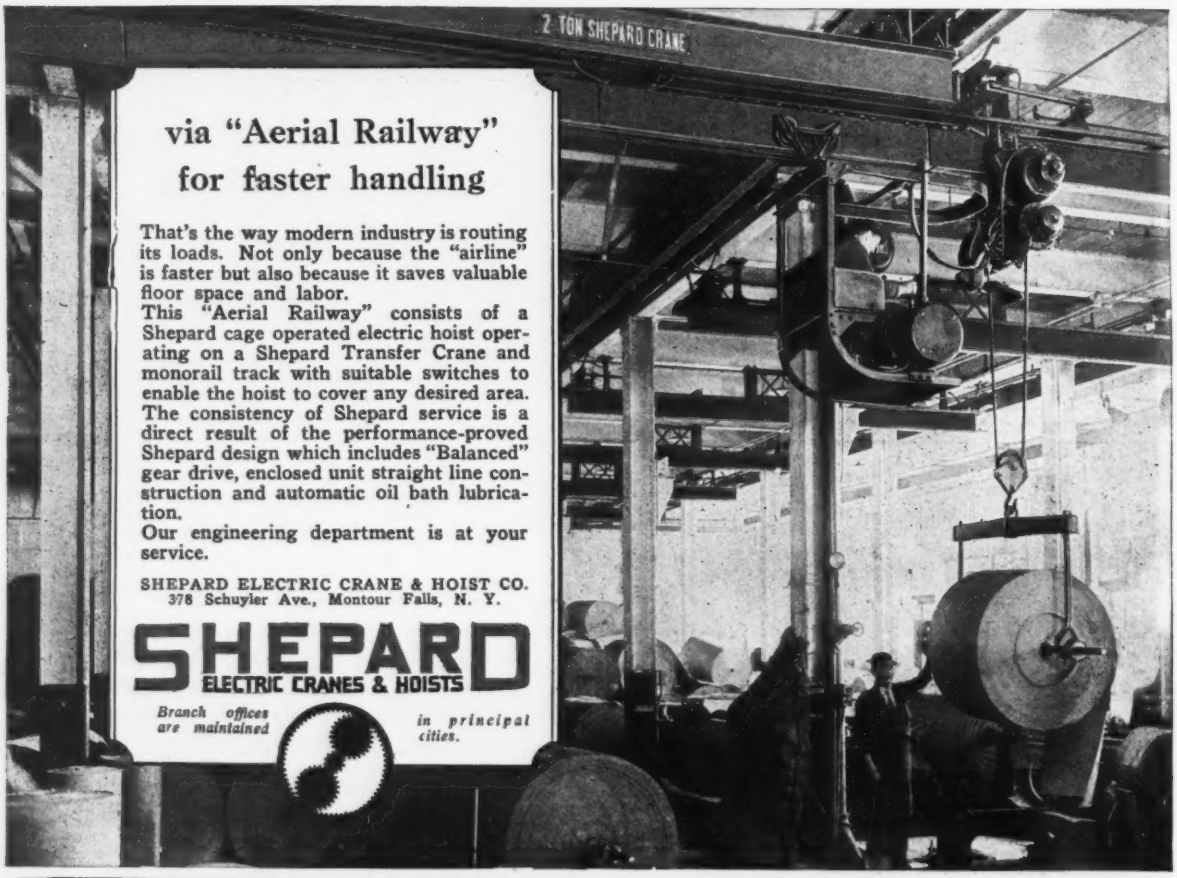
Write for descriptive literature on special couplings for all purposes

United States Cast Iron Pipe and Foundry Company

General Offices:
Burlington, New Jersey

SALES OFFICES

Philadelphia: 1421 Chestnut St.
Chicago: 122 So. Michigan Blvd.
Birmingham: 1st Ave. & 20th St.
Buffalo: 957 East Ferry Street
Cleveland: 1150 East 26th Street
New York: 71 Broadway
San Francisco: 3rd & Market Sts.
Pittsburgh: 6th & Smithfield Sts.
Dallas: Akard & Commerce Sts.
Kansas City: 13th & Locust Sts.
Minneapolis: 6th St. & Hennepin Ave.



via "Aerial Railway" for faster handling

That's the way modern industry is routing its loads. Not only because the "airline" is faster but also because it saves valuable floor space and labor.

This "Aerial Railway" consists of a Shepard cage operated electric hoist operating on a Shepard Transfer Crane and monorail track with suitable switches to enable the hoist to cover any desired area. The consistency of Shepard service is a direct result of the performance-proved Shepard design which includes "Balanced" gear drive, enclosed unit straight line construction and automatic oil bath lubrication.

Our engineering department is at your service.

SHEPARD ELECTRIC CRANE & HOIST CO.
378 Schuyler Ave., Montour Falls, N. Y.

SHEPARD
ELECTRIC CRANES & HOISTS

Branch offices are maintained in principal cities.

Uncle Jake says—

"Some mighty poor trotting horses have made a record when their gait was changed to pacing."

Quite frequently we run across a Printer who tells us that by switching to

KVP BOND

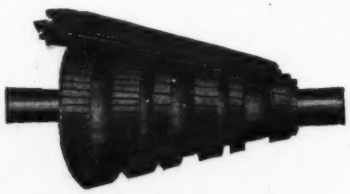
he has materially increased his business.

Our Research Department has unearthed some things that may help you. Ask us and they will come to you without charge.

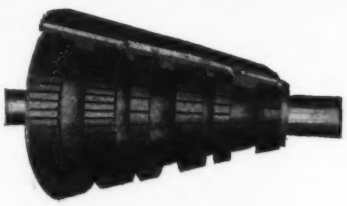
KALAMAZOO VEGETABLE PARCHMENT CO. KALAMAZOO, MICH.

When jordan stock

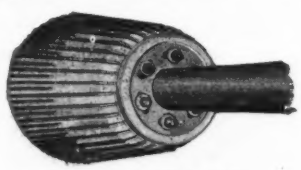
is like a plum pudding



Cast Steel Jordan Plug showing Super-Alloy Steel Plug Bars partially driven into Dovetail Slots



Plug Bars driven into Slots with Woods fitted between Bars. (Woods cut away to show Notching for Ends of Short and Medium Bars.)



Plug completely filled and Bars Anchored with New Type Patened Steel Disc.

If jordan bars had to refine only soft stock, jordan engineers would be relieved of one big problem. But when the mass is dotted with nails, metal chips and other foreign matter, as often happens, the jordan bars must be prepared to stand the added strain.

The super-alloy steel bars in Noble & Wood plugs bear solidly on the entire length of the plug body and are firmly anchored in dovetail slots or secured by means of steel bands according to specific conditions. Securely wedged in between these bars are fillers of selected, sound, dry oak or maple, absolutely clear.

There's not a chance of the bars wiggling. No amount of vibration can loosen them. The racking of foreign matter against the plug can't budge them.

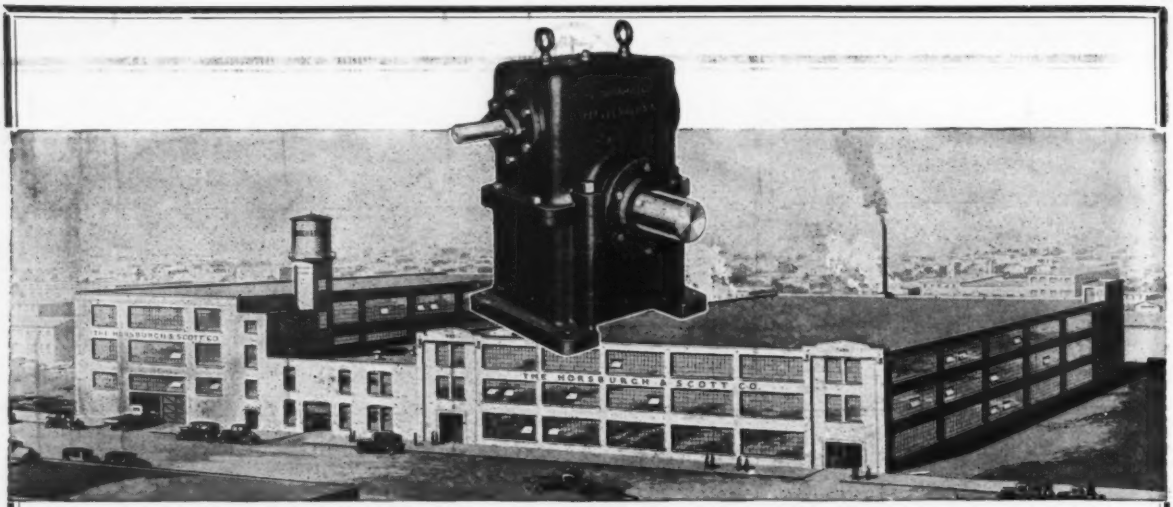
With all their rugged dependability, these bars are so simply constructed that, if necessary, your nearest bar or knife manufacturer can duplicate them,—at a reasonable price ur.affected by patent control or artificial restrictions.

Noble & Wood engineers are qualified to help you solve your paper making problems. Call on them whenever you think of new equipment.

NOBLE & WOOD

MACHINE COMPANY

Hoosick Falls New York



Gears and Speed Reducers

The Horsburgh & Scott Co.

5114 Hamilton Avenue *"Gear makers since '89"* Cleveland, U. S. A.

Gears for Every Industrial Purpose—Worm—Bevel—Herringbone—Spur—Spiral—Hardened Heat Treated Gears—Non-Metallic Gears and Pinions

SUPERIOR

ROSIN SIZE

PRODUCTS

ROSIN SIZE

WAX AND SPECIAL WATERPROOFINGS

FOAM KILLERS

FELT SOAPS

SOAP POWDER

VEGETABLE TALLOW

CHEMICALS AND SERVICE

Twenty-two SUPERIOR Plants

The Most Extensive Organization of Its Kind in the World

Producing, Distributing and Servicing Chemical Products for the Pulp, Paper and Coating Trades

"There Is a SUPERIOR Plant Near You"

PRODUCTS

SATIN WHITE

ENGLISH AND DOMESTIC CLAYS

CASEIN

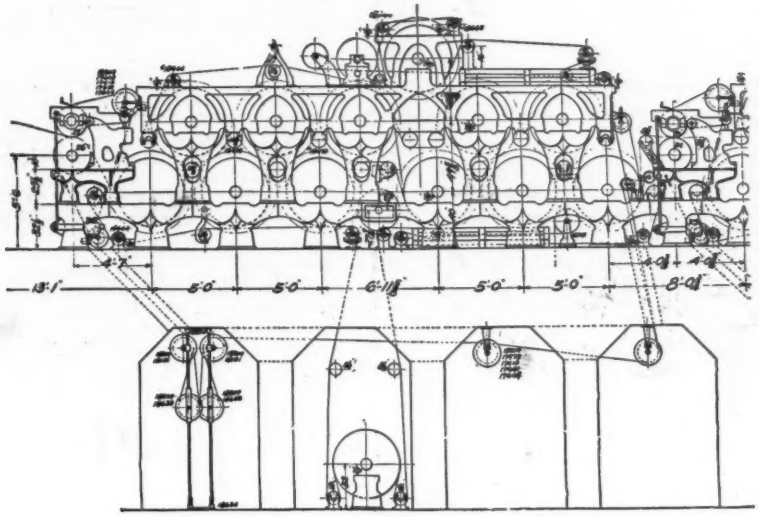
CASEIN SOLVENTS

SOFTENERS

DRY & PULP COLORS

TURKEY RED OIL

Paper Makers Chemical Co.—Easton, Pa., Holyoke, Mass.
Western Paper Makers Chemical Co.—Kalamazoo, Mich., Pensacola, Fla., Jacksonville, Fla., Savannah, Ga., Comstock, Mich.
C. K. Williams & Company, Easton, Pa.
Georgia-Louisiana Company, East Point, Ga., Marrero, La.
Superior Pine Products Company, Fargo, Ga., Tarver, Ga.
Empire Size & Chemical Co., Albany, N. Y.
Adirondack Mineral Co., Carthage, N. Y.
Superior Sizing Company, Lockport, N. Y.
Paper Makers Importing Co., Easton, Pa., St. Austell, Cornwall, Eng.
Vera Chemical Co. of Canada, Ltd., Freeman, Ontario.
Vera Chemical Corporation, Stoneham, Mass.
Vera Chemical Company, North Milwaukee, Wis.
John Regnier & Son Company, Boston, Mass.
George S. Mepham Company, East St. Louis, Mo.
Pochins & Paper Makers Chemicals, Ltd., Erith, Kent and Manchester, Eng.



A reproduction of the blue print of the Sheahan Paper Carrier installed on the 172 inch machine in the mill of The Champion Coated Paper Company, Hamilton, Ohio. The return ropes are in the basement.

Save time, money, and paper broke

The next time you are down in the machine room watch the backtender threading the paper through the dryers. Getting the paper on the dryers calls for skillful handling by the operator and very often thru no fault of his own the tail gets away from him and the result is "broke"—lost production.

A Sheahan Paper Carrier eliminates all this. Your operator simply puts the end between the two ropes and the paper is carried forward *automatically* at the speed of the machine.

There is no slack and its resulting broke. Moreover, this equipment does away with missed ends, spearing because of missed ends, damp paper because of slack, and danger to your operators. You enjoy savings of time, money, and paper broke.

The Sheahan Paper Carrier can be installed on machines of all types and makes —news, book, cover, straw wrapping, board, and specialty—on both new and old equipment.

We'll enjoy laying the complete facts before you.

The Black-Clawson Company, Hamilton, Ohio

Established 1873

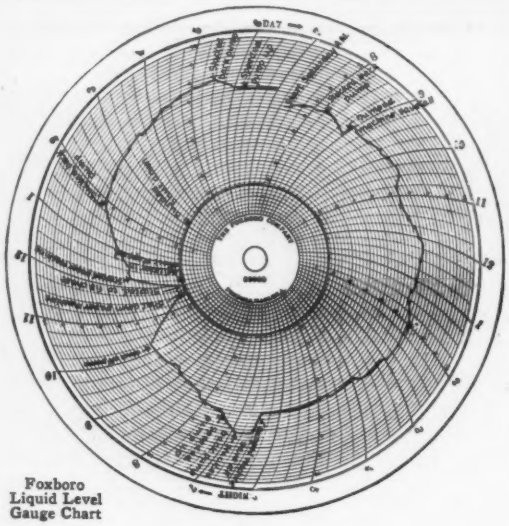
Export Offices: 15 Park Row, New York City

Builders of highest Quality Paper and Pulp Machinery
Patentees and sole builders of Vertical Dryers and Champion Fourdriniers.

BLACK-CLAWSON

CHAMPION FOURDRINIERS

Built with Machine-Tool Accuracy



Foxboro
Liquid Level
Gauge Chart

Save Time-Money— A FOXBORO Liquid Level Guage Does Both

A Foxboro Recording Liquid Level Gauge installed on the stuff chest saves time. And time means money in the beater room.

There need be no slowing down of the paper machine because of empty chests. The Foxboro Liquid Level Gauge shows the beater man—at a glance—the exact amount of stock in the chests, when the beaters are dumped or should be dumped. It even shows when the machine is stopped and started.

Foxboro Records are perpetual inventories. They are visible indexes of stock on hand today and permanent records of stock used each day in the past which helps you plan ahead.

Foxboro Instruments are designed and built to meet the specific requirements of the job.

Each Instrument is guaranteed to be permanent in calibration and is accurate to within less than 1 per cent of total scale range. Only the highest grade instruments could be backed by such a guarantee. Write or wire.

THE FOXBORO CO., *Inc.*

Neponset Avenue, Foxboro, Mass., U. S. A.

New York Chicago Philadelphia Boston Pittsburgh
Cleveland Detroit Tulsa Rochester Atlanta
San Francisco Los Angeles Portland, Ore

Peacock Brothers, Limited, 1605 Delorimier
Montreal, Canada
944 Hastings St., Vancouver

Sole British Representatives: Walker-Crosweller & Co.,
58 Queen Elizabeth Street, London, S. E.

FOXBORO

REG. U. S. PAT. OFF.

THE COMPASS OF INDUSTRY

Successful on all Kinds of Stock in all types of Mills

The adaptability of Dayton High Speed Beaters to all sorts of conditions, in all sorts of mills, making all sorts of paper, is well established.
In the nearly 70 mills now using Daytons are to be found practically all the beating problems likely to arise in paper making. We give below a list of the grades of paper being produced in mills where Daytons do the beating.

Rag Bonds
Book-writing
Container Board
Book-mimeo
Book-cover-writing
Bristol-RR Board
Straw Chip Board
Asbestos
Book-Magazine
Book-bristols
Cont. Bd-Kraft
Tissue
Kraft
Sulphite Bonds
Book
Book-tablet
Cement-flour
W. L. Parchment
Straw
Bonds-Ledgers
Covers-writing
Jute specialties
Specialties
Wall board
Rope
Comb. Board-Chip

Your mill is no doubt producing a product like, or similar to, some item on that list. If so, Dayton High Speed Beaters should be seriously considered. It pays to investigate. Have us send you a list of the mills so you can do that very thing. Write us.

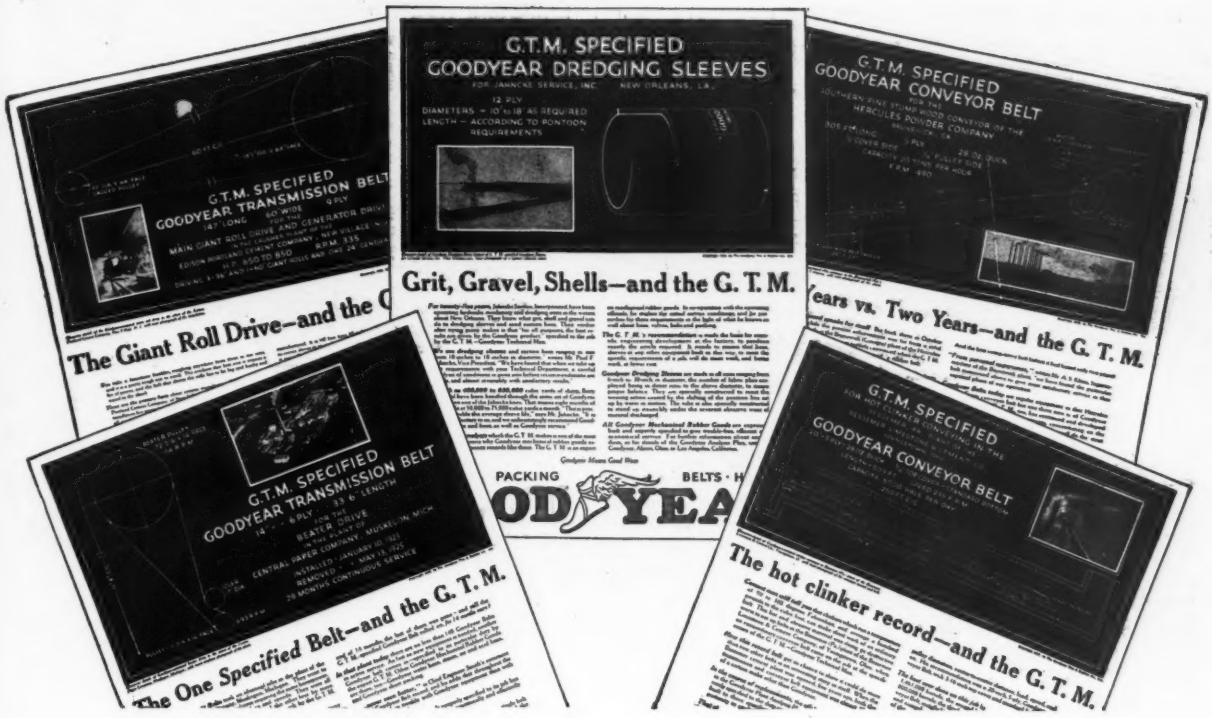
The Dayton Beater & Hoist Co.

DAYTON, OHIO

E. K. Mansfield Co., 501 5th Ave., New York, N. Y.

DAYTON

High Speed Beaters


G.T.M. SPECIFIED
GOODYEAR DREDGING SLEEVES
Grit, Gravel, Shells—and the G. T. M.
G.T.M. SPECIFIED
GOODYEAR CONVEYOR BELT
Years vs. Two Years—and the G. T. M.
G.T.M. SPECIFIED
GOODYEAR TRANSMISSION BELT
The Giant Roll Drive—and the
G.T.M. SPECIFIED
GOODYEAR TRANSMISSION BELT
The One Specified Belt—and the G. T. M.
G.T.M. SPECIFIED
GOODYEAR CONVEYOR BELT
The hot clinker record—and the G. T. M.

Your Belting Needs—and the G. T. M.

Good belting, of course, is the prime foundation of all successful power transmission and material conveying by belt. Yet, aren't many good belts wasting their inbuilt value on jobs to which they have been extravagantly applied? Aren't many others trying—expensively, with many a break-down, repeated troubles and frequent replacements—to perform some duty for which they are wholly unfit?

To answer these questions is to solve the great majority of industrial belting problems—problems that increase production costs and cut down on net profits. To provide that solution is the entire purpose of the Goodyear Analysis Plan and the G. T. M.—Goodyear Technical Man.

The Goodyear Analysis Plan is the scientific way of getting *the right belt* for the job. While its results are often wonderful, it is neither magic nor mystery, but only common sense, methodically applied. For, as you will agree, it stands to reason that the belt which is expertly specified, designed and built to perform a certain task is much more likely to do that job more economically, more efficiently, and last longer on it, than a belt that is bought as just so many feet of belting.

This plan has worked effectively to the benefit of industry for more than eleven years now in the specification, manufacture, application and service of Goodyear belts, hose, and other mechanical rubber goods. It is a special development of the fixed Goodyear principle to build the best value into the product and to provide the service that will help the user get all that inbuilt value out. It has functioned importantly in establishing Goodyear's present leadership in the field of industrial belting.

The G. T. M.—Goodyear Technical Man—has the responsibility of making the plant analysis. You will like him and the way he works. He comes to you with an open mind on your belting problem. He may hold an engineering degree, or a diploma from the school of hard knocks. In either case, he knows belting—has had a thorough training in its uses and design—and has the advantage of having studied belting performance under almost every conceivable service condition. A few of his actual experiences are reproduced on this page.

He co-operates with you, your Plant Superintendent, Factory Manager, or Engineer, in making his survey of your particular operating requirements and conditions. He carefully computes dimensions, power load, and all other factors that affect a belt's performance. He is just as interested in recommending the right belt for a single drive as he is in equipping an entire plant.

You can depend upon the recommendations made by the G.T.M. You can rely on any Goodyear Mechanical Rubber Goods he specifies—Belts, Hose, Valves and Packing—to do their work better, last longer, and cost you less in the end. To get in touch with the G.T.M. nearest your plant, or for further information about the Goodyear Analysis Plan, write to Goodyear, Akron, Ohio, or Los Angeles, California.

Goodyear Means Good Wear

VALVES · PACKING BELTS · HOSE

GOODYEAR

Copyright 1927, by The Goodyear Tire & Rubber Co., Inc.

Ever have a problem like this?

DO you ever encounter trouble cleaning felts? Sometimes find it next to impossible to remove badly caked-on sizing or stubborn oil or grease deposits? Then you can profit by the experience of one paper mill superintendent who also had such a problem.

Here the difficulty was in removing spots of mineral oil. After two different soaps had proved unequal to the task, the advice of an Oakite Service Man was sought. His suggestions for cleaning with Oakite were followed with the result that all oil spots were completely removed. Oakite left the felts *thoroughly clean,* soft and porous—so that now, with washing done regularly the Oakite way, they *stay clean longer.*

For a similar satisfactory solution to any cleaning problem that may confront you, call in the Oakite Service Man. A card brings him, without obligation.

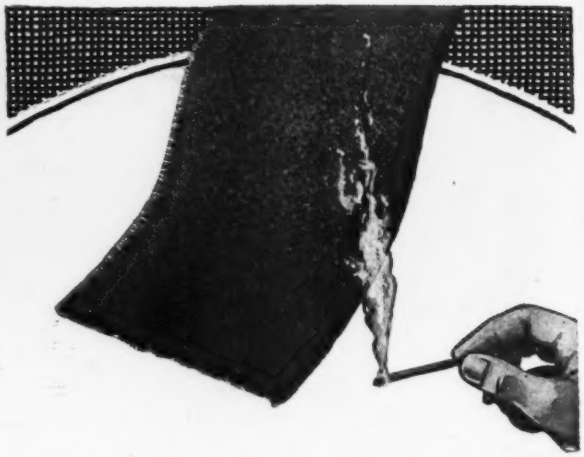
Oakite is manufactured only by
OAKITE PRODUCTS, INC., 48A Thames St., NEW YORK, N. Y.
(Formerly OAKLEY CHEMICAL CO.)

Oakite Service Men, cleaning specialists, are located at:

Albany, N. Y.; Allentown, Pa.; Altoona, Pa.; *Atlanta; Baltimore, *Birmingham, Ala.; *Boston, Bridgeport, *Brooklyn, Buffalo, *Camden, N. J.; Charlotte, N. C.; Chattanooga, Tenn.; *Chicago, *Cincinnati, *Cleveland, *Columbus, Ohio; *Dallas, *Davenport, *Dayton, O.; Decatur, Ill.; *Denver, *Des Moines, *Detroit, Erie, Pa.; Flint, Mich.; Fresno, Cal.; *Grand Rapids, Mich.; Greenville, S. C.; Harrisburg, Pa.; Hartford; *Houston, Texas; *Indianapolis, *Jacksonville, Fla.; *Kansas City, *Los Angeles, Louisville, Ky.; *Memphis, Tenn.; *Milwaukee, *Minneapolis, *Moline, Ill.; *Montreal, Newark, N. J.; Newburgh, N. Y.; New Haven, *New York, *Oakland, Calif.; *Omaha, Neb.; *Philadelphia, *Pittsburgh, Portland, Me.; *Portland, Ore.; Providence, Reading, Pa.; *Rochester, N. Y.; Rockford, Ill.; *Rock Island, *San Francisco, *Seattle, *St. Louis, *St. Paul, South Bend, Ind.; Syracuse, N. Y.; *Toledo, *Toronto, Trenton, N. J.; *Tulsa, Okla.; Utica, N. Y.; *Vancouver, B. C.; Williamsport, Pa.; Worcester, Mass.

**Stocks of Oakite materials are carried in these cities.*

OAKITE
TRADE MARK REG. U.S. PAT. OFF.
Industrial Cleaning Materials and Methods



Don't burn felts!

START the sections quickly—but start them easily. ***And don't burn the felts!***

No need for over acceleration or jerky starting when a C-H Magnetic Clutch will smooth out all the shocks and bring the section up to full speed without slipping the felts.

Just press the button controlling the C-H Clutch and smooth acceleration is obtained automatically. It saves felts, decreases wear and tear on equipment, saves time and reduces starting current peaks.

The interesting story of Magnetic Clutches!

Their construction—characteristics—uses—are fully described in the Cutler-Hammer Clutch Booklet, P-11. Every mill operating executive should read it.

A line from you will bring your copy

***The* CUTLER-HAMMER Mfg. Co.**
Pioneer Manufacturers of Electric Control Apparatus
1226 St. Paul Avenue
MILWAUKEE, WISCONSIN

CUTLER C-H HAMMER
Industrial Efficiency Depends on Electrical Control

THREE ENEMIES
of PLANT EFFICIENCY
WASTE IGNORANCE WEAR
Preventable waste of fuel, sulphur, and raw materials in paper mills totals thousands of dollars yearly. What is your percentage?
Ignorance of facts is the chief reason for this waste.
Such waste not only takes toll of supplies, time, and labor, but also accelerates depreciation of equipment.
Guard your profits with Engelhard SO2 Recorders
The electric gas Analyzer (below) shows whether sulphur burners and furnaces are working efficiently. Engelhard Pyrometers and Thermometers register important temperatures. Type S Recorder (above) connects with gas Analyzers and temperature instruments and makes a continuous graphic chart of their readings.
Reliable, rugged, simple and enduringly accurate!
Write for descriptive bulletin.
CHARLES ENGELHARD
INCORPORATED
90 Chestnut St Newark N.J.

Brass Collapsible Drum Winder Shafts

The Moore & White Brass Collapsible Shaft is of rugged construction. The core shaft is steel, accurately machined, and the shaft parts forming the journals are forged steel and easily removed for repairs without disturbing the shaft proper.

No Springs or Small Screws

Equal Expansion Possible Always

No Rolls Stuck On Shafts

Write us today for complete information

THE MOORE & WHITE CO.

Builders of Paper Mill Machinery since 1885.

No. Philadelphia Station, Penna. R. R.

Philadelphia, Pa.

Extra Days of Fine SERVICE out of your FELTS

At best felt bills run high in any mill. All the more reason for adopting a felt that has built into it a few more days of service than it is possible to get out of other makes.

Think what a few extra days of service out of each felt would mean in the course of a year—how deep a dent it would make in the year's felt bill!

Orr Felts will deliver those extra days of wear because they are built to stand more punishment in their travel between nip and rolls.

Not only that—Orr Felts have the reputation for taking a maximum of water out FASTER than any other felt—and have had that reputation for more years than most of us care to look back.

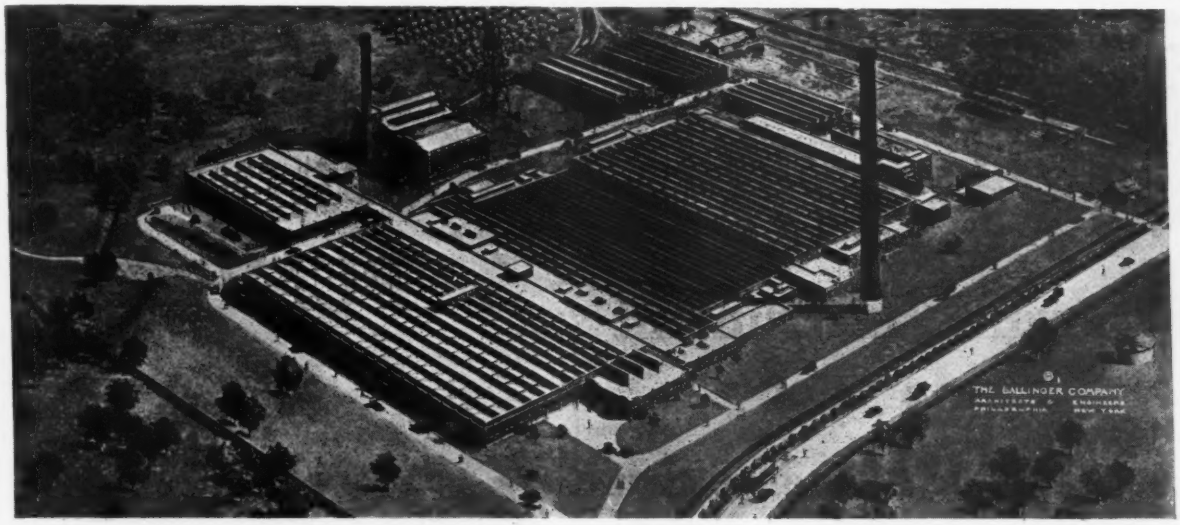
A complete line—an Orr for every machine requirement.

ORR FELTS *for Longer, Better and Most Economical* SERVICE

THE ORR FELT & BLANKET CO.

Piqua, Ohio

ORR FELTS



Plant of the VISCOSE COMPANY at Parkersburg, W. Va., where over 2,000,000 feet of WOLMANIZED LUMBER are in use. The Ballinger Co., Archts. & Engrs., Phila., Pa.

How Often Do You Replace Mill Roofs?

It is the experience of mill owners that untreated roof planking must be replaced every few years—particularly true where plant operations require working under high humidities. When you replace a decayed roof, you are saddled not alone with lumber costs, but with the following:

1. Labor cost—usually over 50% of lumber cost.
2. If a good grade of built-up roof covering is put on, this costs as much or more than the lumber.
3. Labor cost of removing decayed roof—usually 50% of cost of lumber.
4. Lost time in your plant, due to stoppage of production, taking down and replacing automatic sprinkler system, electric wiring, shafting, hangers, etc.

WOLMANIZED LUMBER lasts three times as long as untreated lumber and will *cut your roof maintenance cost more than half*. Proof of this will be found in our free booklet. Send for it, and sample of lumber.

A FEW FACTS:

1. Characteristics of wood unchanged.
2. Preservative "stays put."
3. Lower-cost lumber may often be specified.
4. No discoloration—can be painted, varnished or stained. No odor.
5. Relatively Fire Retardant, as compared with ordinary lumber.

AMERICAN WOLMANIZED LUMBER CO.

7 South Front Street, Elizabeth, N. J.

WOLMANIZED LUMBER DOES NOT DECAY

In Selecting

Bristol's

Recording Instrument Equipment

You have the assurance that each instrument is designed especially for the work to be done; thus providing a service that is correctly suited to the particular needs of your plant

—for example—

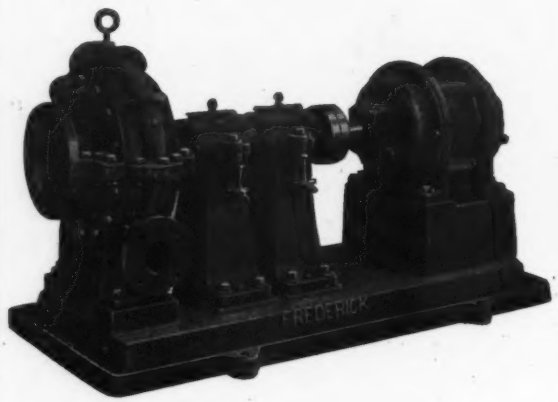
in securing more economical burning of sulphur—USE the accurate guidance of

Bristol's Recording Pyrometers

The Bristol Company *Waterbury, Connecticut*

FOR 38 YEARS — MAKERS OF — BRISTOL'S — RECORDING INSTRUMENTS

FREDERICK CENTRIFUGAL PUMPS

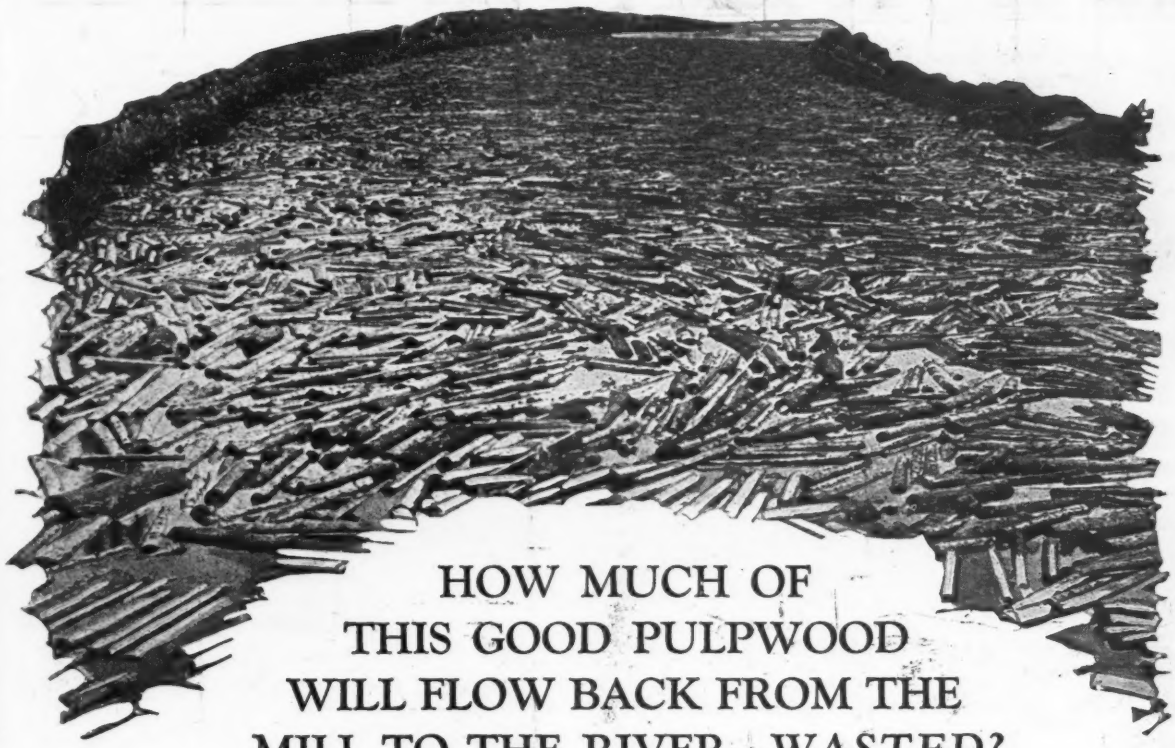


Certain products are of such admitted and outstanding excellence that they become the standard of comparison by which the best of their kind is judged. It is so with Frederick Stock Pumps for paper mills. "As good as a Frederick Pump" means as good as exists. Frederick Pumps were the first modern type stock pumps ever built for paper-mill service. They revolutionized the standards of efficiency in handling paper pulp. The favor with which they are now regarded by paper mills, large and small, throughout the world is rather conclusive evidence that they still hold their leadership in this field.

The Frederick Standard Stock Pump efficiently handles stocks of up to 4% consistency. The Frederick Super-Stock Pump efficiently handles stocks of consistencies up to 6%.

The Frederick Iron & Steel Company
FREDERICK, MARYLAND

Offices in Principal Cities



HOW MUCH OF THIS GOOD PULPWOOD WILL FLOW BACK FROM THE MILL TO THE RIVER—*WASTED?*

Waste that can be prevented by a Dorr Save-All!

A recent check-up on the operation of a Dorr Save-All at a Canadian mill showed an average recovery of 96.5% of the fibre that formerly ran to waste in the white water. Samples were taken over 24-hour periods on 12 different occasions during a month's run, the consistency and volume of feed varying considerably.

That is one of the outstanding features of Dorr Save-All operation. No delicate balance of the feed is required, nor is it necessary to throw additional good stock into the white water. It takes the flow just as it comes, recovers the stock and clarifies the water, without the aid of complicated accessory equipment.

Let us send you pamphlet describing the operation of this machine.

DORRCO

THE DORR COMPANY

ENGINEERS

247 PARK AVENUE NEW YORK CITY

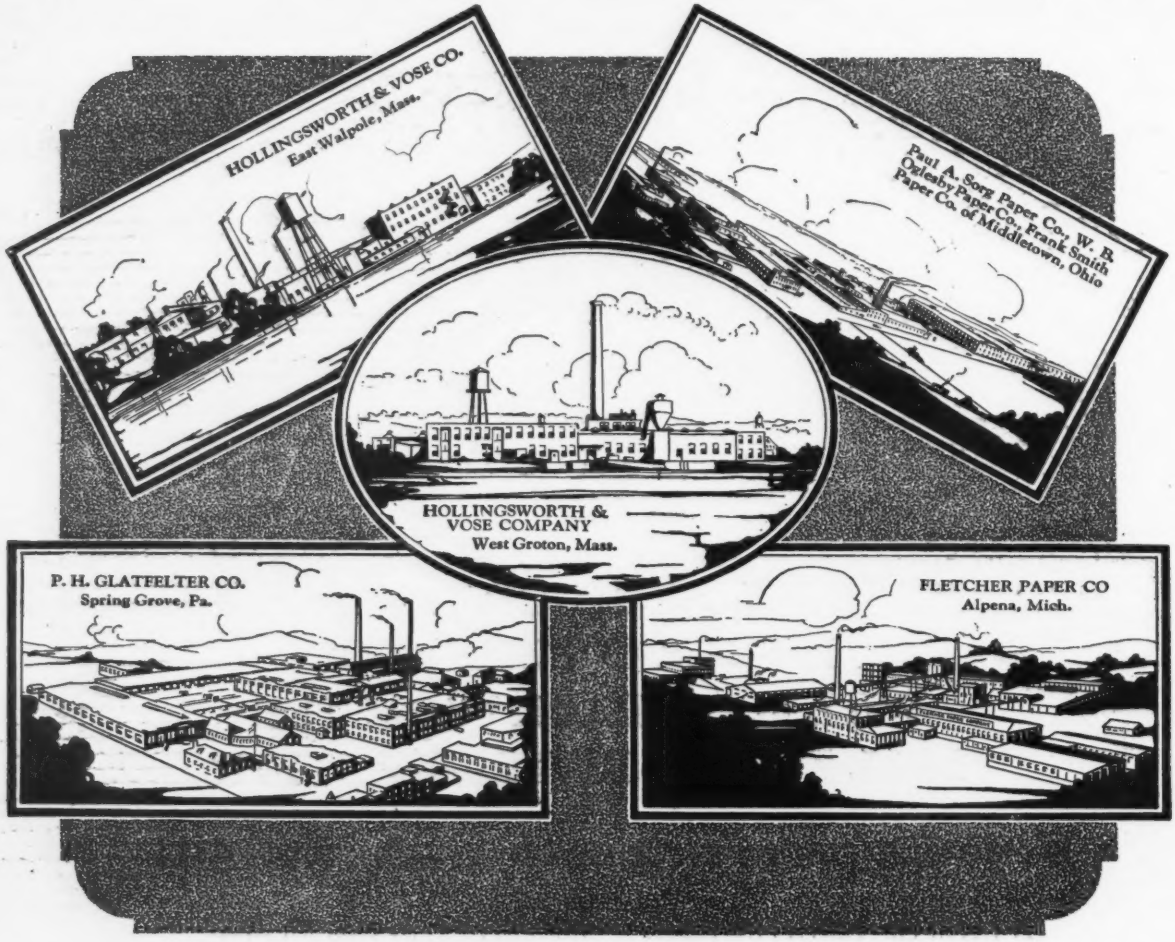
DENVER LOS ANGELES CHICAGO WILKES-BARRE JOPLIN

THE DORR CO. LTD
16 South Street London E.C.2

DORR G. m.b.H.,
Joachimsthalerstr. 10, Berlin W.15

SOC. DORR ET CIE.
126, Rue de Provence Paris 8

INVESTIGATION TESTS DESIGN EQUIPMENT


HOLLINGSWORTH & VOSE CO.
East Walpole, Mass.
Paul A. Sorg Paper Co., W. B. Ogleaby Paper Co., Frank Smith Paper Co. of Middletown, Ohio
HOLLINGSWORTH & VOSE COMPANY
West Groton, Mass.
P. H. GLATFELTER CO.
Spring Grove, Pa.
FLETCHER PAPER CO
Alpena, Mich.

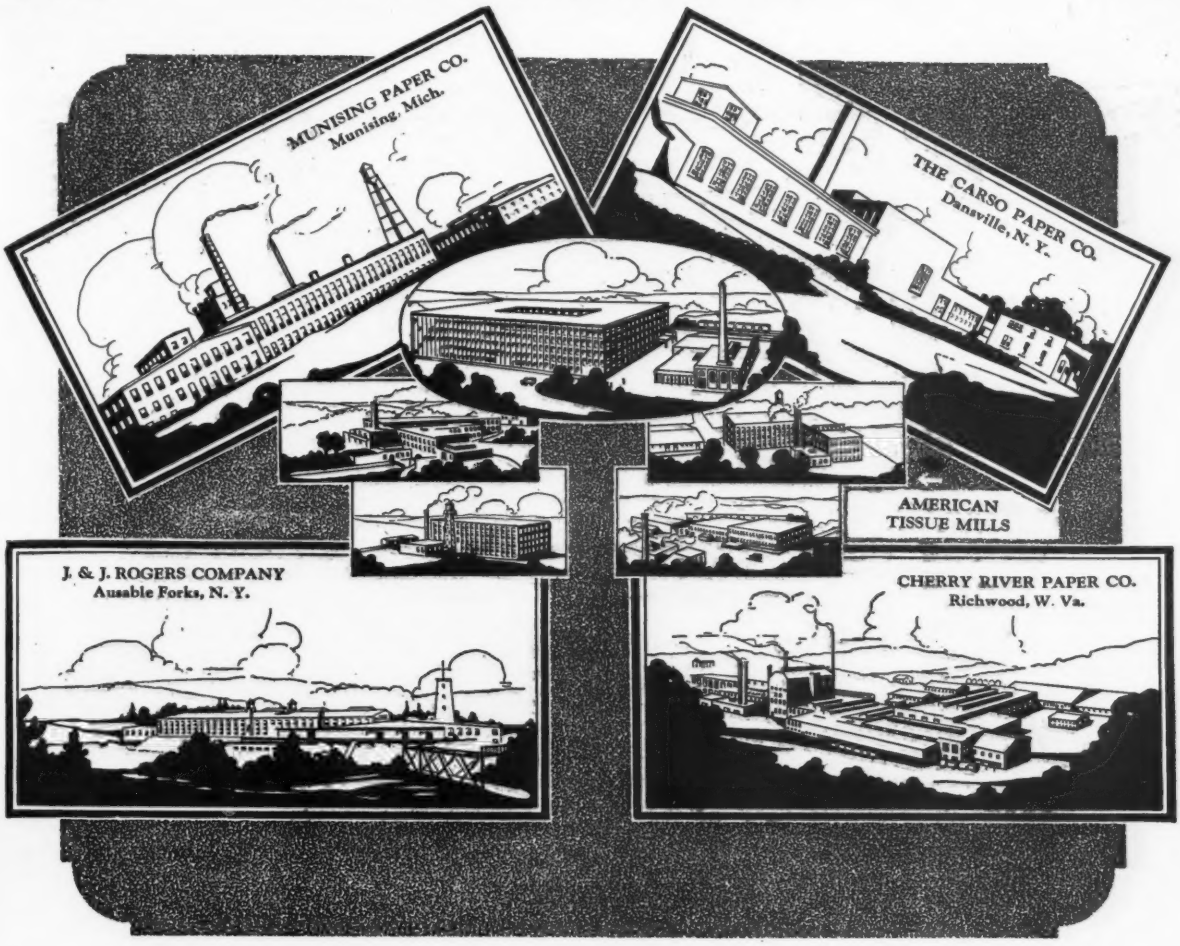
A Few of the mills using EBG

SOME of the nation's leading manufacturers of superior paper. Their choice of EBG Liquid Chlorine is significant, for these successful mills are directed by men of vision, sound judgment, seasoned experience and wide information.

The factors which exert this favorable influence would profit every paper and pulp mill. To the initiated they are factors that make the EBG contract something more than a formal document, a simple instrument of record.

The execution of a contract by EBG is no mere perfunctory matter. It implies a solemn obligation to the buyer, the faithful fulfillment of which is indicated by twenty (1907-1927) solid years of constructive effort.

A service to the paper and pulp industry inspired first



Liquid Chlorine

by a homely spirit of fair dealing and integrity; second by the manufacture of a quality product in which EBG was the pioneer; third by the rigorous adherence to principles of safety and facility, in engineering counsel, container equipment, transportation and the like.

In contracting for your 1928 Liquid Chlorine requirements—let these essential factors guide you—try EBG!

Make 1928 an EBG year!

Electro Bleaching Gas Co.

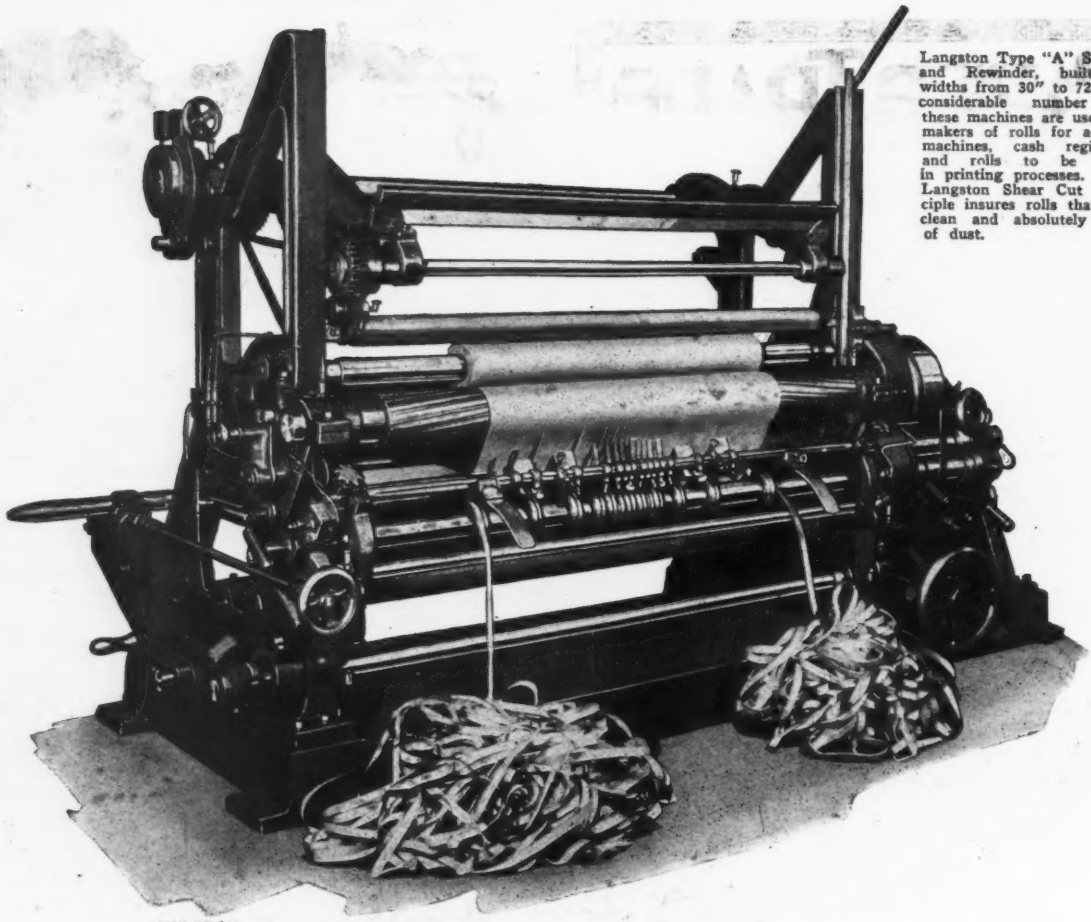
PIONEER MANUFACTURERS of LIQUID CHLORINE

Plant: NIAGARA FALLS, N.Y

Main Office, 9 East 41st Street, New York

EBG

Liquid Chlorine
SERVICE



Langston Type "A" Slitter and Rewinder, built in widths from 30" to 72". A considerable number of these machines are used by makers of rolls for adding machines, cash registers, and rolls to be used in printing processes. The Langston Shear Cut principle insures rolls that are clean and absolutely free of dust.

For hard, smooth, *dustless* rolls —*you can't beat a Langston!*

TAKE a pair of shears and cut across a sheet of paper. The cut is even, has a clean edge, and of course, is without any trace of dust.

You get just that kind of cut from a Langston Slitter. The Langston Shear Cut principle is similar in action and effect to the cut produced by a pair of shears. And rolls made on the Langston Slitter are clean, smooth, and free of dust. No ragged edges. No uncut fibres to interweave and make the rolls difficult to separate. No slightest trace of dust or lint.

In any class of work in which rolls must be free of dust, the Langston Slitter simply cannot be beat. That is why makers of rolls for adding machines, for cash registers, rolls used in printing processes, and many other classes of work in which dust causes trouble, use Langston Slitters.

Every Langston Slitter, regardless of type or size, embodies the Shear Cut principle, and makes clean, dustless rolls.

SAMUEL M. LANGSTON COMPANY, Camden, New Jersey
A. H. Cox and Company, Seattle, Washington.

CLEAN SHEAR CUT CUT

LANGSTON SLITTERS

PAPER TRADE JOURNAL

ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-SIXTH YEAR

Published Every Thursday by the

LOCKWOOD TRADE JOURNAL CO., Inc.

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Chicago Office: Room 14, Suite 410, 123 West Madison St.

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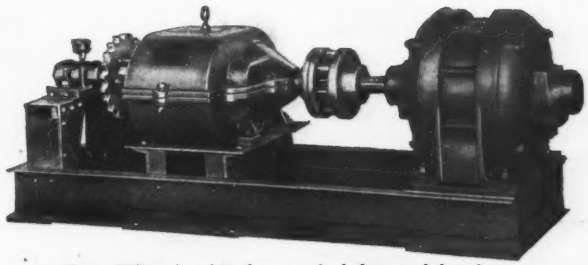


Type "B" unit with slow speed shaft extended and supported in outboard bearing. With all the elements accurately aligned and mounted on a single base, this layout makes a very compact, efficient drive.

Palmer-Bee Speed Reducers minimize the risk of production tie-ups

THE PALMERBEE Reducer is a simple, sturdy, efficient and extremely compact means for stepping down the r.p.m. of standard electric motors to the most satisfactory operating speed for your driven machinery.

Instead of large, rumbling, noisy, vibrating cast gears, or belts that stretch, slip, burn out and cause the bearings to wear prematurely, Palmer-Bee Speed Reducers offer you a positive, smooth, steady, flow of power so essential to the economical manufacture of paper.

The gears are accurately cut from alloy steel forgings, or annealed electric steel castings, mesh with hardened steel pinions and operate under the most favorable conditions in a dust, moisture, acid-proof housing.

Heavy through shafts of high grade Acme steel, supported in bronze bushed bearings of unusually large area, contribute to the sturdiness and long life of the machine.

A patented lubricating system insures a plentiful supply of oil to all friction surfaces, cushioning the shocks of meshing teeth and protecting the various elements from wear.

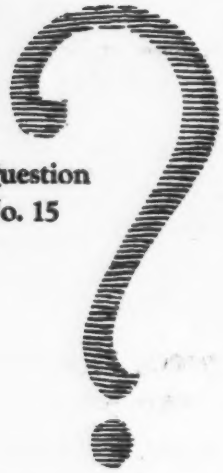
Made in spur and continuous-tooth herringbone types in all sizes and ratios.

PALMER-BEE COMPANY
DETROIT - MICHIGAN

"World's Largest Producers Use P-B Reducers"

Improved
Palmer-Bee Speed Reducers

TRADE MILL REG. U.S. P-B MARK TYPE PAT. OFF.



Question
No. 15

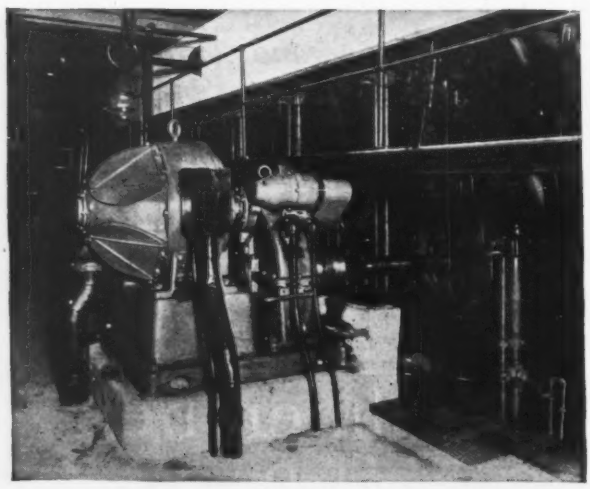
Has Westinghouse Sectional Drive

Greater Reliability?

About
SECTIONAL
Paper Machine
DRIVE

EVIDENCE of the reliability of Westinghouse sectional drive is found in the experience of the Columbia River Paper Mills as reported in the Pacific Pulp and Paper Industry. A news item in the November issue of this magazine describing a new paper machine just placed in operation says in part:

> "Westinghouse Sectional Electric Drive is used, this drive being selected because of its excellent performance on the No. 1 machine . . . . . Westinghouse drive hung up a record for itself in maintenance and minimum loss of paper, the loss of time for a year being only one hour and 45 minutes."



Many paper mills are operating Westinghouse sectional drives and the number of repeat orders received from time to time proves their reliability.

Westinghouse Electric & Manufacturing Company
East Pittsburgh Pennsylvania
Sales Offices in All Principal Cities of the United States and Foreign Countries

Westinghouse

X56447

ESTABLISHED IN 1872

PAPER TRADE JOURNAL

With Which Is Combined

Vol. LXXXV, No. 23 PAPER Thursday, December 8, 1927

Sixth National Power Show Proves Big Success

Largest and Heaviest Industrial Display Ever Assembled Under One Roof Is of Intense Interest To Members of the Paper Trade—Annual Event Brings Together Leaders in Engineering and Industry—Modern and Up-to-Date Devices, Some of Which Are Shown for First Time, Arouse Attention—Heating, Ventilation Exhibits Predominate

With a wide range of many new and wonderful mechanisms, some of which are shown for the first time, the Sixth National Exposition of Power and Mechanical Engineering opened on Monday at the Grand Central Palace, New York. There are more than 500 exhibitors on the four lower floors of the building, the area being approximately that of four city blocks. The show is considerably larger than any of its predecessors, and is the heaviest industrial display ever assembled together under one roof.

Machinery colossal in size, and tiny sensitive precision instruments smaller than a thimble vie with one another for the attention of visitors. All manner of new processes for heating, cooling, clarifying, cleansing, indicating and recording, controlling, etc., are to be found in profusion. Modern centrifugal and other forms of pumps, new insulation compositions, new styles of valves, new metals put to hitherto unthought-of uses, thermostats, vacuum traps, skid hoists, road-building machinery, coal pulverizers, Diesel oil-burning engines, adamant guns for shooting furnace linings, giant stokers, huge turbines, mercury vapor lighting, etc., are only a few of the things displayed.

The Exposition was formally opened by I. E. Moultrop, chairman of the advisory committee, who called attention to some of the wonders accomplished by the various industries represented. He mentioned the fact that the Power Show started in 1922 with but 105 exhibitors, and this year the Show has 400 more than that number. The attendance in 1922 was 47,000. Last year, 103,000 visited it, and it is freely predicted that the present exposition will break last year's mark.

A large percentage of the space is devoted to heating and ventilating. Of the 500 exhibits, between 200 and 250 deal with heating and ventilating equipment and refrigeration for large-scale industries. Engineering and manufacturing executives in all lines of industry may find a tremendous amount of interest and value in these showings of up-to-the-minute devices.

Space limitations prevent individual mention of all the exhibits, but the following is a record of some of those which are of particular interest to visitors from the paper industry:

Air Preheater Corp.

The feature of the exhibit of the Air Preheater Corporation, of 25 Broadway, New York, is an illuminated panorama showing the Ljungstrom Air Preheater in operation. Ljungstrom Air Preheaters are as proportionately great savers in small industrial plants as in the largest and latest central stations.

By means of the Regenerative Counterflow principle, commercially employed by the Ljungstrom Air Preheater only, incoming air is heated to 400 to 650 degrees F. ("Superheated Air") entirely from the heat in escaping flue gases that would otherwise be wasted.

It insures higher furnace rating (more steam from the same boilers), quicker pick-up on peak loads, less strain on boilers and a direct saving on fuel bills.

Allen-Sherman-Hoff Co.

The exhibit of the Allen-Sherman-Hoff Company, of 231 South 15th street, Philadelphia, includes an elaborately illuminated panorama showing the Hydrojet System in operation. By discarding their old ash handling equipment and installing a Hydrojet System, one plant reduced their ash handling expense $20,000 per year.

The Hydrojet System has no moving parts, maintenance costs are low, and because it is totally enclosed the ash basement can be maintained comparatively clean, dry and well ventilated. Also, since the Hydrojet is operated only when ashes are to be removed, one man, part time of one shift, can easily handle the entire ash discharge.

American Well Works

Non-Clogging Centrifugal Pumps are shown in operation by the American Well Works, of Aurora, Ill. The American Well Works manufactures all the standard types of centrifugal pumps used in the industrial, mining and municipal fields—as well as deep well turbines and deep well plunger pumps.

The American Well Works engineers are consequently able to advise as to the best type of pumping machinery for any particular purpose, without any bias, and base their recommendations solely upon the circumstances under which the pumps must operate.

The pumps shown are the latest developments of the types described. These have been developed to their present high efficiency, simplicity and reliability through an experience of nearly half a century in building all kinds of pumps.

Armstrong Cork & Insulation Co.

A feature of the exhibit of the Armstrong Cork and Insulation Company, of Pittsburgh, Pa., is a huge map of the United States, showing the location of the company's offices, factories and cork wood depots. An illuminated panel demonstrates how if heat were visible, one could see how a lining of Armstrong cork board insulation keeps the heat inside.

Condensation on ceilings or the underside of roofs, and frequently on walls as well, is a very serious condition in many industries where a high relative humidity is maintained. In paper manufacture, for example, moisture condenses in cold weather on the underside of inadequately insulated roofs, not only creating unpleasant conditions, but seriously damaging machinery, and goods in process of manufacture or in storage.

The nearest approach to the ideal insulation is found in the cellular structure of cork. Cork is a mass of tiny sealed cells, microscopic in size. Each cell contains an infinitesimal particle of air, so small that it cannot circulate and so tightly sealed that it has no immediate contact with the air particles in neighboring cells.

Cork as an insulator, or heat retardant, in the manufactured form of Armstrong's Corkboard, has the remarkably low conductivity of 0.304 B.t.u. (U. S. Bureau of Standards) per square foot, one inch thick, per degree difference in temperature, per hour. Cork board, moreover, has further advantages not possessed by any other insulators.

Bailey Meter Co.

Bailey Recording Meters are displayed at the booth of the Bailey Meter Company, of 1026 Ivanhoe Road, Cleveland, Ohio. Bailey Meters are universally used to guide operators of pulverized fuel systems in efficient boiler control.

Pulverized coal passes through a boiler furnace in a very few seconds so that the exact amount of air must be supplied each instant. The air flow recorder of the Bailey boiler meter responds immediately to every change in the rate of air supply and shows whether the amount is correct for best combustion efficiency.

Bailey meters record steam flow, air flow, rate of coal feed, flue gas temperature and other important factors. They also indicate primary air pressure, secondary air pressure, furnace draft, up-take draft and other factors needed in boiler operation. This explains why Bailey meter equipment is being selected for important pulverized coal installations now going in.

Blaw-Knox Co.

Electroforged security steel grating and flooring is shown at the booth of the Blaw-Knox Company, of Pittsburgh, Pa. Blaw-Knox gratings are applied to stairways and steps of all sizes and description; flooring in power houses, coaling stations, pumping stations, boiler plants, coal tipples, gas plants, engine rooms, boiler rooms, and floors of ships; ventilating shafts and hatchways; fire escapes, landings, and generally throughout industry wherever a strictly non-slip flooring is desired or an open flooring is necessitated.

Blaw-Knox Regenerative Air Preheaters are also demonstrated at this interesting exhibit.

The Bristol Co.

One of the most comprehensive exhibits at the show is that of the Bristol Company, of Waterbury, Conn. Recording, indicating and controlling instruments for the power plant are prominently featured, including: Pressure and Vacuum Gauges, Liquid Level Gauges, Thermometers, Pyrometers, Voltmeters, Milli-Voltmeters, Ammeters, Shunt Ammeters, Wattmeters, Frequency Meters, Mechanical and Electrical Time Recorders, Pneumatic and Electric Tachometers and Psychometers; also Temperature Controllers, Radio Averaging Instruments, etc.

Many exclusive features are incorporated in Bristol's Instruments which make them specially desirable and are not duplicated in any others. The simplicity of principle and construction is one of the most noticeable characteristics of all Bristol's Instruments.

Perhaps the one greatest reason for the success of Bristol's Recording Instruments is their practicability in every day industrial use. They furnish a fine example of where science is an aid to productive industry. Bristol's have not only proven to be theoretically correct, but both workable and dependable in actual practice. There is no exception to this in any Bristol Instrument.

Brown Instrument Co.

The Brown Instrument Company, of Philadelphia, Pa., are displaying giant reproductions of the Brown Electric Flow Meters. A large model of the circular-chart type of flow meter is mechanically operated.

Both indicating and recording models are exhibited. These are connected to Brown Steam Valves, in globe angle and non-return types, for all pressures, showing separating and steam drying device.

The Brown Company also shows new graduating radiator inlet valves—packed and packless.

Clipper Belt Lacer Co.

The Clipper Belt Lacer Company, of Grand Rapids, Mich., is showing the entire Clipper line, including the new No. 8 Speed Lacer.

The new Clipper electric display, which is electrically and noisily operated, is also exhibited at this booth.

Combustion Engineering Co.

At the large space occupied by the Combustion Engineering Corporation, of 200 Madison avenue, New York, are exhibited two panels that are enlarged reproductions of tables which appeared in the 1927 Pulverized Fuel report of the Prime Movers Committee, N. E. L. A., showing all the power plants in the United States and Canada containing boilers of 500 h.p. and over, burning pulverized fuel with storage equipment.

Check marks indicate Lopulco equipment in these stations. A concealed projector throws a moving line of type explaining what these displays represent.

Other panels showing enlarged settings and plant layouts, and three Scene-In-Action displays are also shown.

Important elements of the various stoker and pulverized fuel products which embody distinctive engineering features are ably demonstrated. Back of these elements are enlarged photographs showing completely the products of which they are a part.

The principal features of the equipment exhibit are a Couch adjustable vane burner, and a small section of forged steel drum.

Cutler-Hammer Mfg. Co.

The Cutler-Hammer Manufacturing Company, of Milwaukee, Wis., feature at their booth the C. H. "Across-the-Line" X automatic starters for alternating current motors, and also show a motor operated unit for controlling steam, water or gas valves electrically.

Electric space heaters and electrical tubular unit heaters are also demonstrated by the organization.

Charles Engelhard, Inc.

The recently perfected Engelhard Stackmeter is shown at the exhibit of Charles Engelhard, Inc., of 30 Church street, New York.

Industrial instruments, pyrometers, automatic controls and resistance thermometers are also demonstrated to visitors.

Erie City Iron Works

At the booth of the Erie City Iron Works, of Erie, Pa., is shown a model of the Three Drum Inclined Water Tube Boiler with Integral Economizer and Seymour Basket type water cooled furnace.

The Erie City Iron Works also shows the Unitype pulverizer and another exhibit which shows concretely the construction of the Seymour Furnace.

Flexible Steel Lacing Co.

Alligator Steel Belt Lacing, Flexo H. D. Belt Fasteners, and Flexo and Flexo-Lok Guards for electric lamps, are displayed at the exhibit of the Flexible Steel Lacing Company, of Chicago, Ill.

The Flexco H. D. method of joining belt ends affords the maximum application of the principle of compression. This principle is by far the most successful method of joining belting mechani-

cally and for tight butt joints in heavy belting, the Flexco H. D. Fastener is giving exceptionally satisfactory service in diverse industries.

Frederick Iron & Steel Co.

Various types of centrifugal pumps, some in operation, as well as a working model of a coal tipple equipped with the Frederick revolving roll coal separator, are featured at the booth of the Frederick Iron and Steel Company, of Frederick, Md.

A considerable portion of the total power required to operate a paper mill is consumed in moving the stock. For many years, the ordinary fan type centrifugal pump with large clearances and unfinished fan wheels, accomplished this, in a manner. With the advent of the Frederick centrifugal pump, the inefficiency of the old fan pump became apparent and paper mill men came to realize that the power consumed by this old type of pump was excessive. Today this older type of pump has practically disappeared except where it is necessary to handle stock containing strings or especially long fiber.

General Electric Co.

The General Electric Company, of Schenectady, N. Y., has a large and impressive exhibit which includes motors and control, a centrifugal air compressor, a small turbine battery charging equipment and atomic hydrogen welding.

The welding exhibit is of special interest, featuring the welding of various alloys and non-ferrous metals; also thin material and the production of ductile welds.

The centrifugal compressor, or blower, was introduced in this country twenty years ago by the General Electric Company. It has been successfully applied to all classes of service where air is required, and for exhausting and boosting gas. Greater flexibility of operation, combined with lower total operating costs, including the items of power, maintenance, and fixed charges, has resulted in the standardization of centrifugal compressors for many industrial applications.

For the past three years, the General Electric Company has been conducting an intensive research program for the purpose of increasing the efficiency of the centrifugal compressor, with the result that seventy-five sizes have been redesigned with greatly improved efficiency. The machines are solidly built, and their operating records attest their reliability. All parts of the unit have been made accessible and proper lubrication of the bearings is assured by the oil pump which is supplied with all machines. This pump is driven from the main shaft of the unit.

Hendrick Mfg. Co.

Mitco Interlocked Steel Grating, with its rivetless construction and rectangular openings, is attractively displayed at the booth of the Hendrick Manufacturing Company, of Carbondale, Pa. Mitco gratings afford a rigid, well-designed, non-slipping floor.

Its principal advantages are: Freedom from rattling, maximum lighting, maximum ventilation, non-clogging and rust resisting, ease of upkeep and repainting, permanent rigidity and long life.

The process of manufacture of Mitco Interlocked Gratings consists in punching in the compression side of the deep or bearing bars a series of dovetail slots on fixed centers, into which are set the lateral or transverse bars. As the dovetail slots are always above the neutral axis, and the dovetails are completely filled by the transverse bars, which are forced into them under a heavy press, the bearing bars develop the full strength of the metal.

The resulting product is a panel whose members are permanently locked at once, neat in appearance, with flush face, easily cleaned and painted and free from clogging on account of the rectangular openings with no acute angles to catch and hold refuse and at the same time giving maximum light and ventilation.

International Nickel Co.

The International Nickel Company, of 67 Wall street, New York, occupies a large space on the main floor of the exposition. This organization features commercial forms of Monel metal and Nickel metals including rods, sheets, tubes, wire, forgings, castings, etc.

The International Nickel Company also displays a large assortment of various manufactured parts loaned, or donated for this purpose by their respective manufacturers and identified with the name and booth numbers of its maker.

Monel metal has been accepted as the material for vital parts of power plant equipment because more than twenty years service has established, beyond question, that Monel metal furnishes the properties required in the most severe steam service.

Monel metal is available in all commercial forms and is adaptable to practically all types of mechanical construction. Monel metal is used for vital parts of power plant equipment because of its unusual combination of properties.

Jenkins Bros.

Jenkins Brothers, of 80 White street, New York, are exhibiting Bronze and Iron Valves of globe angle and gate types for standard and extra heavy pressure; Rapid Action for water service; Radiator valves of standard and modulating types; New Forged Steel Valves for superheated steam and high pressure; Mechanical rubber goods of all kinds including sheet packing and Moncrieff Scotch Gauge Glasses.

Engineers who seek to minimize plant maintenance are guided in their valve selections by the Jenkins Diamond. It is a symbol that says "O. K. to install," and indicates a valve made for the maximum service, not merely the average.

Locke Regulator Co.

The Locke Regulator Company, of 76 North street, Salem, Mass., have an attractive booth at which they are exhibiting Pressure Reducing Valves, Damper Regulators, Safety Shut-Off Valves Automatic Engine Stop Equipment, Float Control Valves, Hydraulic Regulators, Balanced Valves, Non-Return Valves and Exhaust Relief Valves.

Mason Regulator Co.

At the booth of the Mason Regulator Company, of Dorchester Center, Boston, Mass., are exhibited reducing pressure valvess for all pressures, pump governors, damper regulators and a complete working model of No. 132 Fan Engine Regulator and draft control; also back pressure valves and a complete line of balanced valves.

The Mason Regulator Company are distributing to visitors their large and valuable catalog, which contains tables for obtaining sizes of steam pressure reducing valves, and much general information of interest to the paper industry.

Morse Chain Co.

The exhibit of the Morse Chain Company, of Ithaca, N. Y., includes a very comprehensive line of chains as well as a very interesting method of describing their operation.

First of all, the exhibit contains a highly finished chain running on two sprockets with a handle so that it may be propelled. The washers are removed from one side of the link so that the action of the Morse Rocker Joint may be clearly seen.

By slowly turning handle, the rocking action of the pins in running from the sprockets is very clearly illustrated. This also shows the flat bearing surface between pins while the chain is between the sprockets.

There are also samples of Morse Chains ranging from the smallest ⅜" pitch, to the largest, 3" pitch.

Nash Engineering Co.

One of the most interesting and important exhibits at the show is that of the Nash Engineering Company, of South Norwalk, Conn. Jennings Suction Centrifugal Pumps, Jennings Vacuum Heating Pumps and Nash Hytor Vacuum Pumps are prominently featured.

Simple construction assures dependable operation. Pistons, crank shafts, valves, cams, gears, sliding vanes and other complicated

parts likely to get out of order are not to be found in the Nash Hytor Vacuum Pump.

There are only three principal parts in a Hytor—the impeller, casing and end bell. Construction is simple, conforming to approved engineering design.

It is this fact which makes Hytors so easy to operate. And so dependable in service. Other than lubrication and packing, no attention is needed.

Norma-Hoffman Bearings Corp.

The Norma-Hoffman Bearings Corporation, of Stamford, Conn., is exhibiting samples of complete line of ball, roller and thrust bearings.

This is supplemented by a number of sectioned motors, reduction gears and other mechanisms in which Norma-Hoffman bearings are mounted. The organization also has on display the Hirth Minimeter, a precision measuring instrument.

To Norma-Hoffman engineers and production men, "Precision" means the ultimate in dimensional refinement. Above and beyond this, however, it means bearing design worthy of expression in a finished product of this extreme refinement—selected materials well deserving of special treatments and of highly refined machining processes—standards of production which permit no deviation from absolute uniformity, regardless of quantity.

Oakite Products, Inc.

The important part that cleaning plays in connection with operating efficiency of power plants is shown at the booth of Oakite Products, Inc., 22 Thames street, New York, in a series of charts, blue prints and illustrations.

The operating efficiency of a power plant is highest when machinery and equipment are maintained in clean condition in a well lighted and orderly plant. Elimination of dirty oil, grease and grit from the power plant produces a high mechanical standard as well as pleasant working conditions. Floors, walls, and windows can be kept spotless with the proper materials and efficient methods.

Mechanical equipment operates at highest economy with minimum repair and attention when it is systematically cleaned. Oil coolers, surface condensers, and other equipment are cleaned in their working parts in order to maintain maximum heat transfer and to secure economy in operation. Oakite materials and methods are especially adapted to these problems of power plants.

Philadelphia Gear Works

The Philadelphia Gear Works, of Philadelphia, Pa., are exhibiting different types of industrial gears and pinions and also a standard line of speed reducing units.

Philadelphia Speed Reducing Units are the result of 44 years gear making experience. Designed by proficient gear and power transmission engineers, and built of the very best materials, by skilled mechanics—these units are offered to progressive manufacturers, as the most efficient and economical means of reducing the driving speed of electric motors, steam turbines and other prime movers.

Republic Flow Meters Co.

The principal feature of the exhibit of the Republic Flow Meters Company, of 2240 Diversey Boulevard, Chicago, Ill., is the new type Republic Boiler Meter Illuminated Panel. This panel includes the Republic Multiple Recorder which records six individual records simultaneously on one wide strip chart.

In connection with these panels, there is a large animated cross-section view of a modern type boiler showing meter connections and points where readings are taken.

This display has been designed to show the relationship between various boiler records and their necessity for efficient boiler operation.

In addition, there is shown a complete line of Republic Instruments, including Steam Flow Meters, Water Meters, CO_2 Meters, Draft Instruments, Duplex and Single Record Pyrometers, Indicating Pyrometers, and Liquid Level Indicators and Recorders.

Ruths Accumulator Co.

The exhibit of Ruths Accumulator Company, of 200 Madison Avenue, New York, occupies a prominent space on the main floor of the exposition, and consists of various accessories used in connection with the Ruths Accumulator, together with photographs, diagrams and full information regarding the function and application of the Ruths Systems of Steam Storage.

Steam plants using Ruths Accumulators meet peak loads with steam which has been stored during light load periods. The boiler output is uniform and steam pressures constant.

The result is standardized manufacturing conditions made possible by these absolutely constant pressures and the relatively unlimited quantity of steam available at all times.

The uniform boiler load provides ideal combustion conditions. The fuel consumption is usually reduced from ten to fifteen per cent. Maintenance costs are lower as the forcing of boilers to meet peak loads is eliminated.

Schutte & Koerting Co.

The exhibit of the Schutte & Koerting Company, of Philadelphia, Pa., includes Steam and Water Jets for pumping liquids and handling air and gases. Stop Check Valves, Multi-jet Condenser, Halpbringer Electric Control with Motor-operated Reducing Valve, Radiafin Tubes, Gear Pumps, Steam Purifier, Desuperheater, Injectors, Oil Cooler, Steam Jet Thermo Compressor, Piston Valves, complete set of photographs and catalogs on Jets, Condensers, Chemical Equipment-Heat Transfer Apparatus, Oil Burning Systems and Valves.

The S. & K. Turbo Steam Purifier is shown in operation. The Purifier is designed on the centrifugal principle and removes all impurities and moisture in suspension, delivering clean, dry steam to the boiler outlet. The steam entering the Purifier through its top opening flows down against the deflecting plate below. The heavier particles of foreign matter are thrown out, the partially purified steam flowing through the tapered openings just above. The sharp edges of the lower separating plates catch the remaining water and impurities.

The steam passing through the upper channels into the top chambers of the Purifier and thence through the end connection to the boiler outlet, is entirely free of moisture and impurities. The shape of the entrance and discharge channels and the absence of baffle plates reduce pressure loss to a minimum. These Turbo Steam Purifiers can be furnished in both internal and external types.

Shepard Electric Crane & Hoist Co.

Two Shepard hoists are shown in operation at the booth of the Shepard Electric Crane and Hoist Company, of Montour Falls, N. Y.; also photographic enlargements of installation views of Shepard equipment in the leading industries; also views of the complete line of hoisting equipment ranging from small hoists of ¼ ton capacity to overhead electric traveling cranes of 30 tons capacity.

Modern industrial practice exacts vigorous and sometimes brutal service from crane equipment and inevitable overloading, but the Compact Crane is a crane of steel, designed in every detail to meet such service.

Shepard methods of standardized manufacture and a sectionalized trolley construction in interchangeable sections permits each trolley to be built up of units suitable for the service intended instead of an arbitrary combination. This reduces the purchase price, at the same time permitting the best application of the crane to the job.

Paper Production Increases During October

Total Production for the Month Was 571,404 Tons as Compared With 566,869 Tons in September and 583,145 Tons in October, 1926, According to Figures Just Issued By the American Paper and Pulp Association—Total Wood Pulp Production Was 186,522 Tons

Due to the fact that there was one more working day in October than in September the total monthly production of paper in October increased 0.8 per cent according to reports to the American Paper and Pulp Association.

The total production of paper reported for October was 571,404 tons as compared with 566,869 tons in September and 583,145 tons in October, 1926.

Fine and tissue papers were the only grades not showing a decrease in the daily average production; fine showing no change and tissue increasing 0.5 per cent over September daily average.

Total production of wood pulp for October was 186,522 tons as compared with 164,815 tons in September and 226,862 in October, 1926.

COMPARATIVE REPORT OF OPERATIONS IN IDENTICAL MILLS FOR THE MONTH OF OCTOBER, 1927

Grade	Number of mills	Practical production capacity	Production	% of capacity	Shipments	% of capacity	Stocks on hand, end of month
News Print	71	149,058	114,675	77	118,371	79	27,939
Book	66	113,516	94,037	83	95,166	84	53,380
Paperboard	116	264,238	211,505	80	213,379	81	42,382
Wrapping	73	62,498	53,127	87	52,664	86	46,681
Bag	20	15,496	13,689	88	14,129	91	8,669
Fine	74	33,670	31,066	92	31,139	92	40,719
Tissue	46	14,352	14,359	100	15,253	107	13,472
Hanging	9	7,202	6,017	84	5,884	82	3,691
Felts & Bldg.	13	13,702	10,890	79	10,100	74	2,704
Other Grades	60	29,510	22,038	75	21,660	73	18,594
Total—All Grades		705,242	571,404	81	577,745	82	258,231

COMPARATIVE REPORT OF WOOD PULP OPERATIONS IN IDENTICAL MILLS FOR THE MONTH OF OCTOBER, 1927

Grade	Number of mills	On hand first of month	Production for month	Used during month	Shipped during month	On hand end of month
Groundwood Pulp	86	101,773	78,759	82,715	2,433	95,384
Sulphite News Gr.	38	8,449	39,561	36,990	1,714	9,306
Sulphite Bleached	22	2,553	24,431	22,266	2,467	2,251
Sulphite Easy Bleached	7	1,963	3,702	3,471	190	2,004
Sulphite Mitscherlich	6	427	7,269	6,102	1,179	415
Sulphate Pulp	10	2,790	16,822	15,023	1,690	2,899
Soda Pulp	11	2,789	15,943	11,557	4,641	2,534
Pulp—Other Grades	2	172	35	.....	....	207
Total—All Grades		120,916	186,522	178,124	14,314	115,000

PAPER REVIEW FOR TEN MONTHS IN 1927

Grade	Number of mills	Production (net tons)	Shipments (net tons)	Stocks on hand end of month—net tons
News Print	71	1,250,373	1,235,461	27,939
Book (M. F. S. C. & Coated)	63	916,925	908,879	53,016
Paperboard (Straw, Fiber, Leather, Chip, Box, etc.)	113	1,933,949	1,938,476	41,185
Wrapping (Kraft Manila, Fiber, etc.)	74	516,216	503,344	47,161
Bag (All Kinds)	23	126,633	127,022	8,669
Fine (Writing, Bond, Ledgers, etc.)	74	299,225	300,212	40,719
Tissue (Toilet, Crepe, Fruit Wrappers, etc.)	53	144,772	143,786	14,320
Hanging (No. 2 Blank, Oatmeal, Tile, etc.)	9	57,096	56,362	3,691
Felts and Building (Roofing, Sheathing, etc.)	13	103,418	103,025	2,704
Other Grades (Specialties not otherwise classified)	60	221,593	220,062	18,594
Total—All Grades		5,570,200	5,536,629	257,998

WOOD PULP REVIEW FOR TEN MONTHS IN 1927

Grade	Number of mills	Production	Used	Shipped	On hand end of month
Groundwood Pulp	91	856,654	866,706	24,807	95,384
Sulphite News Grade	38	406,547	378,527	27,527	9,306
Sulphite Bleached	23	246,519	211,165	36,669	2,343
Sulphite Easy Bleaching	7	41,371	34,664	5,621	2,004
Sulphite Mitscherlich No. 38	6	67,629	58,554	9,456	415
Sulphate Pulp	10	167,554	152,410	14,471	2,899
Soda Pulp	11	166,552	121,605	45,135	2,534
Pulp—Other Grades	2	417	186	36	207
Total—All Grades		1,953,243	1,823,817	163,722	115,092

Judge Conboy Hears Diana Corp. Case

UTICA, N. Y., December 5, 1927.—A hearing relative to the affairs of the Diana Paper Corporation, of Harrisville, was held last week before Judge John Conboy with many matters of interest to creditors coming up for examination. Attorney Benjamin Stolz, representing the Howard Smith Paper Mills, of Montreal, filed complaint with the manner in which the affairs of the bankrupt company were being handled by the trustee. F. M. Boyer, counsel for the Diana Paper Company, was questioned by Mr. Stolz regarding the financial situation of the concern in 1925 and 1926.

Mr. Stolz asked Mr. Boyer why the bank thought a loan of $300,000 would put matters right. Mr. Boyer stated that the indebtedness was nothing like the amount stated and that $860,000 of debts had been wiped out under refinancing. S. F. Valentine, former treasurer of the Diana Company, was then questioned by Mr. Stolz regarding the concern's finances.

Testimony in the examination of Mark S. Wilder, official of the company, was then completed before Justice Conboy. Counsel for the Howard Smith Paper Mills alleged preference of certain claims of Mark S. Wilder, former president of the company, and others amounting to a considerable sum. Following the hearing Attorney Stolz said he would make application to Federal court within a short time to compel Daniel Schuyler, as trustee, to start an action against Mr. Wilder, the Jefferson County National Bank, The Northern New York Trust Company, and the Exchange Bank of Carthage to have returned nearly half of a million dollars in preferences, alleged received by them.

Attorney Francis E. Cullen appeared in behalf of the Diana Paper Company with C. A. Phelps representing the trustee, Mr. Schuyler.

Grays Harbor Pulp Company's Plant Started

PORTLAND, Ore., December 1, 1927.—Foundations for all the major structures in the layout of the Grays Harbor Pulp Company's plant in East Hoquiam, Wash., were started November 21. Forms for many of the foundations had already been completed and the first of the concrete could be poured with the completion on this day of all basic forms.

The major buildings of this plant are now to go forward at once. Construction of the huge smokestack has progressed to considerable height. This is of concrete with face brick. The acid towers will be of like construction.

Nothing further has as yet been done about the water system, the engineers planning that this can be done and the pipe lines installed after the main part of the project is near completion.

Demand for Paper "Spotty" in Philadelphia

Holiday Requirements Having Been Practically Covered, Many Distributors Are Now Clearing Their Warehouses Through Inventory Sales—Pennsylvania Paper Mills Only Producing on Limited Scale at Present Due to Scarcity of Orders

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., December 5, 1927.—Despite the strong tone that has prevailed in the Quaker City paper market throughout the year in view of the duller times prevailing the week's increase in paper purchases should be offset by a weakness in the price structure among some of the mills featuring specialties that are heavily consumed at this season. While consumers placed their belated orders for wrapping, inroads were made on the prices of some grades of krafts. While the mills were eagerly seeking advance 1928 orders for krafts at reductions, the prices of the distributors held steadily, except where volume orders were booked, when slight recessions were effective. It is stated by the distributors that the mills are seeking sufficient advance orders to assure operations throughout the month of January and that the present inroads on values will be short lived. Mills making the recessions reported that a large volume of business had been secured and that in many instances prices made in the offer had been withdrawn. When the southern mills announced the cut a well known New York State manufacturer followed with a cut of ¼ cent per pound on its krafts. As the kraft mills made known their price offers the manufacturers of felts came forth with similar cuts effective on deadening, saturating and linoleum grades. There was a reduction of from $5 to $10 per ton effective on the felts. The reductions were accounted for by the slackening of the building trades.

As the inventory season approaches the fine paper trade has been subjected to clearance sales that have been equally effective in the matter of price inducements. While most of these clearance sales are for large purchases at the discount quoted they are being broadened to smaller lots of slow selling merchandise by those dealers intent upon reducing their wares to make way for new goods in the coming year. The trend of activity in the fine paper market is downward as the holiday needs have been taken care of and attention is now being given to clearing up warehouses by pre-inventory sales.

Local Mills Not Booked Ahead

In former years the Pennsylvania paper manufacturers and those in the surrounding states have been actively engaged at this season in securing advance orders that would provide for operation throughout the month of January. This year there has been a dearth of orders and mills are now producing on a limited scale. While no price changes have been effective in the mill quotations in this section, it is believed that the coming month will witness some recessions if sufficient orders are to be secured to maintain present schedule for the first few weeks of the new year. Some discounts have been made to wholesale paper dealers where large contracts have been secured but generally the fine paper mills are firmly holding to the values prevailing throughout the current year. Those mills recently involved in reductions on sulphite bonds have withdrawn their offer.

Wholesale Paper Merchants Association Expands

For the purpose of broadening its scope of activities the Wholesale Paper Merchants Association of Philadelphia decided to extend its membership to those engaged in the distribution of paper and allied products, at its meeting held last Friday in the Benjamin Franklin Hotel. In the original group of members comprising more than 90 per cent of those engaged in wholesale paper distribution the enrollment was confined to the fine paper dealers. With the change in the bylaws permitting other branches of the industry to be linked with its activities there will be eligible to its ranks those who are engaged in wholesale distribution of wrapping papers, twines and cordage and other allied specialties. The change was made to facilitate the applications of several large firms who were desirous of becoming members for enrollment and these will be fully represented at the next meeting, held December 23, when action will be taken on all applying. It is the aim of the organization to complete a full representation of the paper industry for the interchange of business experiences to be discussed in open forum at the monthly sessions. President Howard Sattherthwaite, of the Satterthwaite Cobaugh Company, presided. James McCracken, of Reigel & Co., has become affiliated with the organization and represents his firm.

Paper Stock Dragging

The brief spurt of activity which the local wholesalers in paper stock enjoyed has drifted into a listness that indicates a lack of preparation on the part of the mills for continued extensive operations in the early weeks of the new year. There continues to be a dearth of the commoner grades, despite the slower movement of these grades in recent days. Prices continue to hold to the higher levels to which they soared when the pinnacle of activity for the current year was reached in October.

Whiting Patterson Co. Linked With Griffiths Co.

Having taken over the former interests of the Philip Griffith Envelope Company, for more than a quarter century engaged in the manufacture of envelopes in this city, the Whiting Patterson Company, 320 N. 13th street, announced to the trade last week its plans with regard to assuming the obligations of the merged concern. The Phillip Griffiths Envelope Company for the past decade has been conducting its business at 417 Locust street with Phillips Griffith and Arnold J. Tiernan comprising its ownership. The business was founded by Mr. Griffiths, the younger associate having formerly been affiliated with the Whiting Patterson Company and joining the firm a few years after its organization. Under the merger the Whiting Patterson Company, of which Allen E. Whiting is head, agrees to assume all obligations subject to the approval of the creditors of the envelope manufacturers.

Scott Paper Co. Increases Stock

Stockholders of the Scott Paper Company, of Chester, Pa., many of whom are Philadelphians, were called into special meeting on November 25 to act upon the increase of the common stock of the company. At the session approval of the proposal to extend its common shares from 30,000 to 300,000 was effected. It was also decided that 150,000 shares of the new common stock equivalent to $300,000 capital, be issued in exchange for the 15,000 shares of common stock at present outstanding. The Scott company is engaged in the manufacture of toilet and towel tissues and like products. For the ten months to October 31, the company's net total sales amounted to $4,877,498, a gain of 17 per cent over the like period of 1926.

Holyoke Paper Corp. Opens Office

Under the management of T. I. Brower, the Holyoke Paper Corporation has opened a Philadelphia office in the Lafayette Building. The local office will look after the Quaker City needs for bonds and krafts and fancy box paper featured by that firm in its Holyoke, Mass., headquarters. There will also be featured the blank books, ledger sheets, ruled forms and other stationery

lines produced by the Eureka Blank Book Company of Holyoke. A complete line of the waxed papers and gummed tape produced by the Union Wax and Tissue Paper Company, of Hamburg, N. J., is also distributed through the Brower management.

Mather Paper Co. Settled In New Home

Having acquired larger quarters in the three story structure at 937 N. Front street, the Mather Paper Company has removed its coarse paper business to the new location. The firm formerly conducted a wrapping paper, bag and specialty business at Front and Arch streets. The new and larger quarters provide for larger warehousing facilities for the expansion of business, long established among the down town coarse paper trade, of which C. W. Mathers is head.

Miller Paper Co. Sells Sun Towels

The Miller Paper Company which recently acquired offices at 20 S. 15th street is featuring the Sun towels, manufactured by the Sun Paper Company, of Rising Sun, Md. The Sun Paper Company also produces a line of other sanitary tissues handled through the Miller Company under the management of George E. Miller.

George W. Ward Leaves For Prolonged Trip

For the purpose of regaining his health, President George W. Ward, head of the D. L. Ward Paper Company, 28 S. 6th street, left for the far West where he will sojourn for the next six months. Mr. Ward, who is suffering from a sinous infection, will take up his residence in Tucson, Orizona, where the air is alleged to prove beneficial in effecting a cure from this affliction. During his absence the business will be conducted by W. A. Hentz, secretary of the company.

James Andrews Recovers From Illness

James Andrews, a member of the Schuylkill Paper Company, 215 S. 5th street, and one of the best known of fine paper dealers, who has been confined to his home for several weeks suffering from an infection of the stomach, has returned to his desk for a brief time preparatory to a recuperating trip to the mountains. Within a fortnight he will leave for the mountains of Pennsylvania, where he will spend the next few weeks in the famous Pocono health resorts.

Cherry River Paper Co. Changes

Several changes have been effected in the mills of the Cherry River Paper Company, in Richwood, Va., with headquarters here in the Pennsylvania Building, whereby improvements will be made in the production of its line of papers. Clark H. Morian, sales manager for the Cherry River Company, who returned last week from a tour of the mills in Richwood, announced the renovations at the mills whereby the standard and quality of the papers will be improved. There will also be provided an increase in the production of bleached and unbleached sulphites of a high grade texture. The Cherry River Mills produce an extended list of specialties including envelope papers, index bristols, tag stocks in bleached and unbleached grades and other papers.

A. Hartung, Inc., Adds To Sales Force

There have been added to the sales organization of A. Hartung, Inc., 506 Cherry street, two additional representatives who will cover the Philadelphia territory. They are Paul G. Markely and C. W. Dunkle, who will feature fine papers.

To Use Damaged Cotton As Paper Stock

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., December 5, 1927.—Cotton growers in the flood districts are planning to use flood damaged cotton as paper stock. To that end application has been made for special freight rates to Ohio river crossings and points east and north, establishing rates applicable to waste paper. Clare B. Tefft, traffic manager of the Chamber of Commerce, has received word through traffic agencies that there are hundreds of thousands of bales of cotton in the flood area that will be useless unless converted into certain grades of paper.

Reports on Colorado Pulp & Paper Co.

DENVER, Col., December 1, 1927.—Joseph Buchhalter, former president of the Colorado Pulp and Paper company, retained $34,765.56 that belonged to the company, Referee Harry Behm of Denver reported to District Judge Samuel W. Johnson of Adams county, at Brighton.

The referee, who had been appointed to take an accounting and determine how much, if anything, Buchhalter owed the company, found that the former president of the concern had kept thousands of dollars which should have gone into the corporation treasury.

The referee found that Buchhalter had received $7,196.09 in profits from the discounts on claims against the old Myers Pulp and Paper company. Buchhalter bought up these claims, paying as little as 50 cents on the dollar for some and turned them in on the purchase price of the paper mill at 100 cents. In addition, under the referee's findings, Buchhalter collected $6,724.30 in interest on the claims he purchased, $13,898.78 on the claims turned over to him by Charles B. Myers, and $4,878.06 on claims bought up after the Colorado Pulp and Paper company had acquired the paper mill.

Other moneys for which Buchhalter must account, under the referee's findings, are:

Profits made on discounting acceptances for the company, $1,562.69.

Interest on loans made by Buchhalter to his own company, $97.53.

Unauthorized salary collected by Buchhalter, $250.

Company oil and gasoline used in Buchhalter's automobiles, $357.71.

On a suit brought by Myers, who charged Buchhalter and others with a conspiracy to squeeze him out of the company, the company was thrown into a receivership. It is now being operated by Receiver George W. Beck. Buchhalter has threatened to appeal the case to the supreme court but thus far he has not done so.

Referee Behm, in his formal report to the court, stated that the unauthorized salary collected by Buchhalter and the company oil and gasoline "used by Buchhalter in his personal automobile and for which the Colorado Pulp and Paper Company paid were received by Buchhalter while he was acting in the capacity of officer, director and trustee of the company.

The report states that Buchhalter claims he should be credited with $13,118.61 paid out for various purposes. The referee, however, does not recommend that these claims be sustained.

The next step in the litigation will be action by Judge Johnson on the referee's findings. The court then will pass on Buchhalter's claims and order him to make restitution to the company.

St. Helens, Ore., To Have $3,000,000 Mill

PORTLAND, Ore., December 1, 1927.—A sulphate pulp mill with a capacity of 100 tons daily will be built at St. Helens, Ore., according to preliminary announcement of H. F. McCormick, vice-president of the Charles R. McCormick Company, owners and operators of shipping lines and lumber projects. It is proposed to establish the new plant on the site of the McCormick Lumber Mill, destroyed by fire three years ago.

An incorporation with a capital of $3,000,000 is on the eve of organization, but according to Mr. McCormick, no details of the new enterprise will be divulged until after this incorporation is completed, except that the plant will manufacture sulphate pulp and perhaps later will enter the paper manufacturing field. It was quite definitely stated that actual construction will be under way near the first of the year.

Financing is being handled by New York and Wisconsin capitalists.

The McCormick Steamship Company operates a coastal and intercoastal service between all the principal Pacific ports and South America.

Water Power Developments Expand in Canada

Enormous Growth of Dominion's Paper and Pulp Industries Necessitates Tremendous Consumption of Hydro-Electric Energy—Kipawa Plant of International Paper Co. Supplying Most of Sulphite Pulp For Artificial Silk Industry

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., December 5, 1927.—J. T. Johnston, director of the Water Power Branch of the Department of the Interior, in his annual report, just issued, gives some astonishing figures relative to the growth of water power development in Canada. He states that by the end of the present year the total installation of water power plants in Canada will be 4,883,000 horsepower, and that if the present rate of increase continues, it will easily pass the 5,000,000 h.p. mark by the end of 1928.

Two of Canada's rapidly expanding industries—pulp and paper, and mining—are becoming tremendous users of hydro-electric energy. The pulp and paper mills, it is now estimated, have a total hydraulic installation in connection with the mills themselves of 526,731 h.p., while the additional hydro-electric energy purchased by this industry, from central electric stations is estimated at over 831,000 h.p., making a total utilization of 1,358,052 h.p.

Indicating the rapid growth of hydro-electric development in the Dominion it is pointed out that in 1900 the total installation amounted to only 170,000 horse power. During the subsequent decade that development grew to 975,000 horse power, at the close of 1914 it was 1,946,000 horse power and at the end of 1920 it had increased to 2,508,000 horse power.

As further evidence of Canada's present possible installation Mr. Johnston says: "It is not correct to subtract the total installation at November 1 (4,883,000 h.p.) from the totals of available powers to determine what power remains undeveloped, as investigation has shown that throughout the Dominion the installations at developed sites exceed the estimates of ordinary six-month power at such sites by about 30 per cent. On this basis the total recorded resource of Canada would warrant the installation of about 43,000,000 h.p. In other words, the present turbine installation represents slightly more than 11 per cent of the total resources."

The total capital invested in the water-power industry in Canada at this date is estimated to be $900,000,000, or more than that for any other single manufacturing industry. The corresponding figure in 1910 was $121,000,000, so that the increase in 17 years is over 600 per cent.

Of the total installation of 4,883,266 horse power in Canada at November 1 this year Ontario's share is 1,827,088 h.p. and Quebec's 2,165,443. The other provinces are as follows: British Columbia, 473,062; Manitoba, 255,125; Nova Scotia, 65,702; New Brunswick, 47,231; Alberta, 34,107; Yukon and N.W.T., 13,199; Prince Edward Island, 2,274; Saskatchewan, 35.

Quebec's total of 2,165,443 h.p. is divided into 1,796,692 h.p. developed in central electric stations, 242,044 in pulp and paper mills, and the remaining 126,707 h.p. in other industries. Of Ontario's total of 1,827,088 h.p. central electric stations develop 1,544,766 h.p., the pulp and paper mills 174,548 and other industries 107,774 horse power.

Artificial Silk Production

An industry that is every day proving a more and more important consumer of pulp products in Canada is the artificial silk or rayon industry. Canada has now two large plants for the making of rayon fabrics, both of which are owned by parent companies in England. These are Courtaulds, Ltd., which has a plant at Cornwall, Ont., capable of producing 50,000 lbs. of yarn per week, and Canadian Celanese, Ltd., which has a plant that will soon be producing 25,000 lbs. per week and completing the knitting and weaving of this yarn into finished products. The former employs about 800 workers, and the latter will eventually employ some 2000 to 3000 workers.

Almost the entire Canadian output of sulphite pulp suitable for the manufacture of rayon comes from one plant, the Kipawa mill of the International Paper Company at Temiskaming, Que., which has a capacity of 75,000 tons of rayon pulp per annum. This mill uses selected Canadian spruce wood which is ideal for the making of a uniform pulp. Canada has an outstanding position in this regard, as she is now capable of producing more than one-half of the world's present consumption of this product.

Newfoundland and Labrador Timber Leases

Newfoundland is tightening up its administration of the Labrador territory, ownership of which was confirmed to it by the Privy Council recently, and it is reported here that the license and lease holders in the territory have been notified to pay up license fees or suffer cancellation of their licenses. Prior to the Privy Council case Newfoundland issued licenses for timber, pulpwood and power, and most of these licenses are said to have found their way into Boston ownership.

The Province of Quebec, however, declined to admit the validity of these licenses, and whenever a licensee went in to cut wood and build a pulp mill the Quebec authorities promptly stepped in and stopped the work. The licensees, therefore, waived the formality on their fees to Newfoundland. Since the Labrador coast has been given to Newfoundland, Quebec has no further rights in the territory and Newfoundland is administering matters in its own behalf.

There are no administrative officers, no white residents at all, it is said, with the exception of a Hudson Bay post at the mouth of the Hamilton River. There was, therefore, no formal handing over by Quebec to Newfoundland, the younger colony simply being confirmed in its ownership.

Big Timber Cut Planned

It is estimated that in New Brunswick this winter some 425,000,000 feet of timber will be cut on Crown and privately-owned lands, averaging a normal cut.

About two-thirds of the cut of the portable mills are destined for the British market, chiefly three inch deals, showing an improvement in the British lumber market, which in some quarters today, is considered as being even better than the United States.

The announcement that the cut this year would be a normal one, came with a certain degree of surprise, to which, of course, was added satisfaction, as it was taken to mean an improvement in the lumbering outlook. It will be recalled that a reduction on stumpage on Crown lands was recently granted and this may have something to do with the decision as to this season's cut despite the fact that there are yet large stocks on hand from last season's cut. Indications seem to point to a general expectation on the part of the lumber operators for the anticipated improvement in the British market. On the Restigouche alone it is expected the cut will total some 100,000,000 feet.

In addition to the long lumber much will be cut for the pulp mills.

From the Maritime Provinces as a whole over a million Christmas trees are being shipped to the United States.

Vacuum Paper Dryer

Ogden Minton, inventor of the Minton Vacuum Dryer, read a paper on the appliance before the members of the Engineering Institute of Canada, at a meeting in Montreal during the week. The first installation of the dryer was made at the Kenogami

plant of Price Brothers & Co. While the results of the experiments on news print at Kenogami were not official, Mr. Minton clearly showed his hearers the advantages of the new process over the standard dryer.

Among the salient features claimed for this process were a saving of steam of over 40 per cent; considerably less floor space; less building cost required; the machine is more easily handled by the machine crew; and the humidity and heat of the machine room are eliminated and working conditions are greatly improved. It is estimated that the dryer felt costs per ton of paper in the case of the vacuum dryer will be one-fourth to one-third of the cost in the case of the standard dryer section.

Dividend Basis for Fraser Common

Directors of Fraser Companies, Ltd., have given notice that it is the intention of the company to redeem its issued and outstanding 7 per cent cumulative redeemable convertible preferred shares at 105 on January 30th, 1928, plus accrued and unpaid dividends to the date so fixed for redemption.

It is understood that the directors propose to establish the common on a dividend basis of $1 per share per annum for 1928, and that the company's earnings are running substantially in excess of this figure. Present earnings do not reflect any benefit to be derived from the company's large expansion program now under way at Edmundston and Madawaska mills, which will have the effect of approximately doubling its present production of finished high grade sulphite pulp and paper products.

New England Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 3, 1927.—D. W. Cantrell, proprietor of the Southern Wooden Ware Company, Nashville, Tenn., which handles large quantities of paper bags and twine and is agent for the Advance Bag and Paper Company, was recently guest of a party of Northern friends, including John F. Blackman, vice-president of the D. F. Munroe Company, at a deer-hunting camp near the Pleasant River section about 100 miles north of Bangor, Me.

Mr. Cantrell is a prominent factor in the business life of Nashville. Although he needed to borrow heavier clothing after his arrival, and brought only a bird gun with him, he apparently had more enjoyment from the trip than the rest of the party as far as seeing deer were concerned, while the Northerners' pleasure in hearing him recount his experiences fully compensated for what they lost otherwise. They did not see so many deer or get so close to them.

Mr. Cantrell, who left the camp alone, seemed to attract the deer by his swaying gait. Every time he went he saw three or four and would have an interesting story to tell on his return. Finally he shot a 24-point buck, which had been particularly saucy. The animal weighed 235 pounds. The carcass was taken charge of by Mr. Cantrell's Boston friends and the best parts sent to him, after preparation by a market-man. Mr. Cantrell was very appreciative of the "kindnesses shown a tenderfoot hunter," as he expressed it.

M. A. Schoenbucher, secretary of the Wrapping Paper Division of the National Paper Trade Association, is expected in Boston about December 12. He will be in the New England territory a few days. A special meeting will be called at which Mr. Schoenbucher is to talk on the latest developments of the association.

The D. F. Munroe Company is sending out announcements in regard to the Silverton Clasp Envelope, manufactured by the Standard Envelope Company. The silver-gray color of Silvertone harmonizes with every color in the spectrum. It has desirable strength and weight for the mail.

The Falulah Paper Company, with mills at Fitchburg, Mass., whose lines are handled by John Carter & Co., Inc., has announced that owing to new equipment the concern has been able to make a slight reduction in the price of Falulah Blanks.

An Outstanding Industial Success

An explanation of one of the outstanding industrial sucesses of the year, the revival of the American Writing Paper Company following a long period of failure ending in a receivership, is contained in an article by Johnson Heywood on Sidney L. Willson, president of the Company, in *Forbes Magazine*.

The article points out that when stock of the reorganized company was listed on the New York Stock Exchange last spring, common was issued at $10 a share and preferred at $27, whereas at the writing of the article common was selling at above 20 and preferred around 54.

"The man who is responsible for this, although he declines to take sole credit," says the article, "is Sidney L. Willson. He was made President early in 1923. After a couple of months, he was made receiver, the unanimous choice of creditors, bond holders and stockholders. For such conflicting interests to agree on one man without an argument is almost unheard of.

"Willson insists that his achievements have been due to the help of able assistants, horse sense and good luck."

The writer added the comment that the "able assistants" were picked by Mr. Willson himself and said luck averages up in the long run, although he went ahead to relate how Mr. Willson landed in Denver with a grip, a letter of recommendation and fifteen cents at the start of his career, and among his first acts found a five dollar bill on the sidewalk, and a few blocks further on encountered a man who offered him a job.

Experienced as a paper merchandiser, Mr. Willson took charge of the big, unprofitable paper corporation, with its twenty-six plants, and applying common sense and selecting a personnel experienced in making paper, carried it to where it is now earning at the rate of approximately $1,000,000 a year with the promise of a still brighter future. Listing some of the results of Mr. Willson's methods, Mr. Heywood said:

"Economies have been put into effect that are saving more than two million dollars a year, without hurting the quality of the product in a particle. No saving in labor or material that might possibly affect the quality is countenanced. Most of the savings have come through preventing wastes in overhead expense.

"Here are some of them:

"With approximately the same volume of sales as in 1923 the average inventory today is around $2,800,000 as against $4,000,000 then, That reduces the working capital required and makes big savings in carrying charges.

"Of the twenty-six mills which had been operating on the average only 25 per cent of capacity, ten were shut down and put on the market for sale. Several of them have already been sold. Those which are still operated are kept busy at about 82 per cent. of full capacity. That reduces not only the actual cash outgo for overhead expense, but greatly reduces the amount of overhead which each pound of paper must carry. Few things are more expensive than a party idle mill.

"The paper making business is highly seasonal as regards sales. Shipments of paper begin to rise in January and reach their peak about March. During the first six months the shipments are far above the capacity of the mills to produce. During the next three months shipments are much less than the capacity of the mills, while for the last three months shipments about equal production.

"In the old days little attempt was made to lay up inventories in slack times to take care of the rush. As a result some of the mills were wholly idle and others fully shut down for three months while at the rush period overtime added to the expense that always accompanies hectic production.

"The mills have been rearranged to take care of production to better advantage. Production is carried on at practically uniform rate throughout the year, piling up carefully balanced inventories during the off season to take care of shipments at their peak. That does away with the excess costs both of idleness and overtime."

Chicago Paper Trade Enjoys Buying Movement

All Lines of Paper Reported to be in Active Request — News Print Market in Most Satisfactory Position—Fine Paper Distributors Generally Optimistic — Book Papers in Good Condition, With Prices Steady—Tissues Moving Excellently

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., December 3, 1927.—Brisk, cold weather and thousands of holiday shoppers thronging into Chicago's loop give evidence of the fact that paper dealers have at last reached the true Christmas season, with mild weather and desultory buying a thing of the past. Stationery stores in the loop are busy decorating their windows with all the Yuletide trimming with fancy stationery sharing a large part of displays.

In the paper industry, at least as reported in Chicago and vicinity, all lines of paper are responding to the brisk buying period that precedes December 25. Once again news print must be given credit for the most satisfactory position, according to reports. The price of $3.25 for standard news in rolls to contract customers is the same as that of 1927 and speaks well for a good year to come. Production is going forward rapidly with demand steady and the market in excellent shape.

Book papers are in good condition, with prices very steady. Coated papers are gaining ground daily. Fine papers are in just fair shape, with fine paper dealers, however, optimistic over the increase in demand that has been made. They feel that, considering various unpreventable causes and the mild weather, things are in as good a condition as might be expected.

Tissues are moving along excellent, with business prospects very bright, at least until after the holidays. Box board and liner board continue to be the bright spots in the board market, where business conditions are in excellent shape. Wrapping papers, twines, etc., are swinging into the holiday season with a tremendous volume of business in sight. Prices are unchanged in the old paper market. Stocks of paper on hand continue to be small with the "hand-to-mouth" system of buying generally in vogue.

N. A. Schoenbucher to Address Many Meetings

A busy program is just ahead for N. A. Schoenbucher, secretary of the Wrapping Paper Division of the National Paper Trade Association. Mr. Schoenbucher will open a series of educational programs before various local paper associations, commenting with the Wisconsin Paper Merchants Association. Mr. Schoenbucher is scheduled to speak before this group Tuesday, December 6, at the Hotel Plankington, Milwaukee.

Wednesday, the 7th, Mr. Schoenbucher will speak before a meeting of the Empire States Association at Rochester, New York, going from there to Boston, where he will speak on the 9th before the New England Association. Monday will find him with the New York Association, Tuesday the 13th he will be in Philadelphia, the following day at Baltimore, ending his trip at Roanoke, Va., on the fifteenth.

Mr. Schoenbucher will return to Chicago just in time to give a talk before the Chicago Paper Association at their annual banquet for salesmen on December 20.

The secretary of the Wrapping Paper Division has just returned from a trip through the South where meetings similar to the ones scheduled for the future were held. Mr. Schoenbucher talked before local paper associations, their members and non-members at Beaumont, Texas., Louisville, New Orleans and Cincinnati. A close to one hundred per cent attendance greeted Mr. Schoenbucher at each of these cities. It is expected that the turnout of paper merchants on the coming trip will be just as representative.

At each of these meetings Mr. Schoenbucher has or will present and discuss the educational platform prepared by the Wrapping Paper Association and presented before the National Paper Trade Association at the time of their Fall Meeting in Chicago last October. A series of slides and accompanying discussion devoted to an analysis of the costs of doing business form the major part of the interesting discussion.

Chicago Paper Association to Elect Officers

The Chicago Paper Association will elect officers for the coming year at their annual meeting to be held next Wednesday evening, December 7. A large attendance is expected. The present officers are Edgar A. Hall, Jr., president; Leo S. Altholz, vice-president; Joseph H. Murnane, secretary and treasurer and Charles Harder and Julius Lefkow, director. The progress of the Association under this group of executives has been remarkable. Plans for a workable credit association, general schooling for salesmen and general improvement of the industry have progressed materially while the Code of Ethics recently adopted is a high spot in the progress noted during the past year.

The Chicago Paper Association will give a dinner for salesmen and members of the Chicago Division of the Salesmen's Association of the Paper Industry at the Bismarck Hotel, Chicago, Tuesday evening, December 20. N. A. Schoenbucher will be the main speaker of the evening. He will show slides and direct a discussion on the costs of doing business. Other feature entertainment has been provided for. This dinner has grown to be one of the features of the entire year in this city and, if past history is any indication, nearly 400 salesmen and guests will be present.

News of the Trade

Duncan W. Dietrich, well known figure in the paper industry, announces the forming of an organization to be known as the D. W. Dietrich Paper Company, with offices at 228 North LaSalle street, Chicago. Concurrently with this announcement Mr. Dietrich announces the termination of his connection with the Allen Paper Company, effective November 21.

John Robinson, well known in the paper industry, has recently become associated with the Import Paper Company, Chicago, as general manager. Mr. Robinson was with the Butler Paper Company for nine years and more recently was connected with the Rex Paper Company. He is well acquainted with all the fine points of the fine paper business and will make a valuable addition to the force of the rapidly growing Import Paper Company.

The many Chicago friends of William E. Nash, Sr., sales manager of the Nekoosa-Edwards Paper Company, Port Edwards, Wisconsin, are glad to hear of his improvement following a serious accident that occurred early in November. Mr. Nash, according to reports from local offices, received a fractured skull when he was struck by an automobile.

John Powell, sales manager of the Rex Paper Company, came from his office at Kalamazoo, Mich., this week, to visit paper merchants in Chicago.

With the end of the year coming and January inventories approaching, the influx of visitors to Chicago paper houses is expected to slow up in the next week or two. Christmas business is being capitalized to the fullest extent.

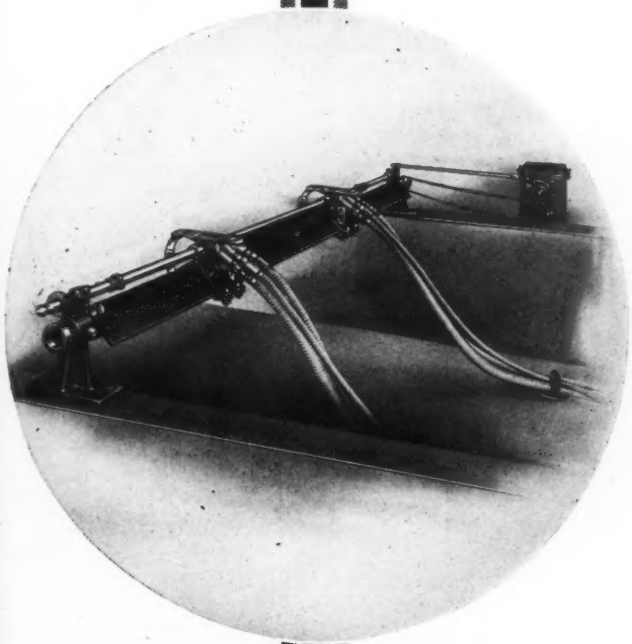
Production Index for Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 7, 1927.—The October production index number for paper was 100 per cent compared with 100 for September and 125 for October of last year taking 1919 at 100 per cent according to the Department of Commerce.

450 Sold

287 Repeat Orders



Its value is established

Some paper makers say that the Vickery Felt Conditioner pays big dividends in tonnage produced as a result of fewer shutdowns.

Others regard it as an invaluable means of maintaining uniformity of the sheet.

Still others emphasize the profit resulting from increased life of felts.

Whatever the reason, sixty-four per cent repeat orders indicate that the Vickery Felt Conditioner is a gilt edged investment.

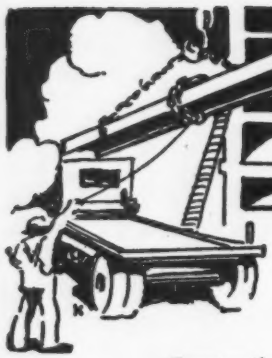
May we show you what returns the Conditioner will net you?

BIRD MACHINE COMPANY
SOUTH WALPOLE
MASSACHUSETTS

BIRD MACHINERY

1431

The Vickery Felt Conditioner



CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Steubenville, Ohio—The Federal Paper Board Company, River Road, Bogota, N. J., is said to be planning the construction of a new mill for the production of paperboard and affiliated products at Steubenville, where site has been selected on Third street. The unit will be one-story and is reported to cost in excess of $70,000, with equipment. J. L. Mousley is one of the heads of the company in charge.

Los Angeles, Cal.—The Capital Envelope Company, care of Henry E. Carter, Fay Building, representative, recently organized with a capital of $75,000, is said to be perfecting plans for the operation of a local factory for the production of paper goods. The company is headed by M. B. Bushnell and George C. McNamara.

Port Huron, Mich.—In connection with its expansion program now under way, the Port Huron Sulphite and Paper Company has decided to carry out further extensions, to cost close to $200,000, bringing the entire expenditure to about $500,000. It was intended originally to increase the mill capacity by 35 per cent, this advance will now be carried to approximately 75 per cent. Additional equipment will be installed in the pulp-making and paper-manufacturing divisions. E. W. Kiefer is president.

Salt Lake City, Utah—The Rocky Mountain Bank Note Company, 580 South Temple street, manufacturer of high grade paper specialties, has begun the erection of a new one-story and basement addition, reported to cost about $18,000, for which general contract recently was let to Vissing & Briers, 32 East Fourth street, South, Salt Lake City.

Oswego, N. Y.—The Oswego Board Corporation, Oswego, recently organized as a subsidiary of the St. Regis Paper Company, Watertown, N. Y., is perfecting arrangements for the early erection of its proposed new mill on local site, to be equipped for the manufacture of insulating board and kindred products. The plant will be equipped for an initial output of about 400,000 ft. per day and is estimated to cost in excess of $1,500,000, including machinery. The first unit is being scheduled for completion early in the coming spring. The parent company recently disposed of a preferred stock issue totaling $2,739,900, a portion of the fund to be used for expansion.

Dubuque, Iowa—The Maizewood Products Company, recently organized to manufacture wall board products under a special process, has begun work on the first unit of its new local mill, and expects to have the structure ready for service in the spring. It will be three-story, 60x450 feet, reported to cost in excess of $150,000, with machinery. A contract for building only has been let to W. L. Yocum, Dubuque.

New York, N. Y.—The Excello Paper Mills, Inc., recently organized with a capital of $10,000, plans the operation of a local plant for the manufacture of a line of paper products. The new organization is headed by Harry C. Simon, Barnett Trolin and A. George Lutz, 769 St. Marks avenue, Brooklyn.

Holyoke, Mass.—The Whiting Paper Company is planning the early occupancy of the local mill property recently purchased from the Lyman Mills, Inc., manufacturer of cotton goods, and will operate in conjunction with its Holyoke mills. The property consists of five buildings with power house, and will be remodeled and improved. Machinery will be installed at an early date, following the removal of present textile equipment. The entire project is reported to cost in excess of $1,500,000, including property acquisition, and will provide for large increase in manufacture of high-grade writing papers, bond papers, etc.

Trinity Bay, Que.—The St. Lawrence Paper Mills, Ltd., Canada Cement Building, Montreal, Que., has authorized the immediate erection of its proposed mill addition at Trinity Bay, for which a general contract has just been let to the Foundation Company of Canada, Ltd., Sherbrooke street, West, Montreal. The expansion program will cover several new units, with additional pulp-loading and other operating facilities, and is estimated to cost about $1,000,000, with machinery.

Toronto, Ont.—The Canadian Paperboard Company, Seigneurs street, Montreal, Que., has awarded a general contract to W. J. Trimble, 73 Adelaide street, West, Toronto, for its proposed new local paperboard mill, for which plans have been in progress for a number of weeks past. The plant will consist of a main two-story and basement beater building, 85x90 feet; one-story and basement machine department, 40x360 feet; one-story finishing room, 100x110 feet; one-story machine shop, 60x60 feet, and several other one-story structures for general operating service. The entire project is expected to cost close to $1,000,000, with machinery. The project will be pushed to completion.

Park Falls, Wis.—The Flambeau Paper Company has approved plans for the construction of a new addition to its plant, to be equipped primarily for bleach house service, and will proceed with work at an early date. It is reported to cost more than $35,000, with equipment. Orbison & Orbison, Appleton, Wis., are architects.

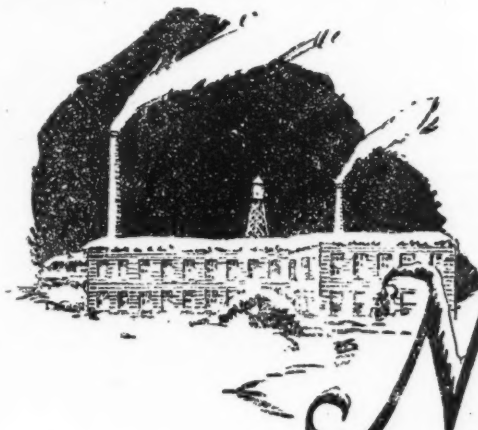
Newark, N. J.—Kelly & Co., 780 Frelinghuysen avenue, paper mill supplies, have completed plans for the construction of a new addition to their plant, to be one-story, brick, estimated to cost about $55,000. A general building contract has been let to Robert Allen, Inc., 319 Mount Pleasant avenue, Newark.

Sioux City, Iowa—The Pill Brothers Paper Company has plans for the early rebuilding of the portion of its plant recently destroyed by fire with loss reported in excess of $20,000, including building and stock. Benjamin Pill heads the organization.

Tuscaloosa, Ala.—The E-Z Opener Bag Company, Decatur, Ill., is reported to have plans under way for its proposed new paper mill on local site acquired a number of weeks ago and is expected to ask bids on general contract at an early date. The project will consist of a group of buildings, estimated to cost in excess of $2,000,000 with machinery. In addition to the paper-manufacturing unit, it is purposed to construct a paper bag mill.

South Bend, Ind.—The Empire Box Company, 518 West Monroe street, Chicago, will soon break ground for the erection of its proposed new local plant for the manufacture of paper boxes, corrugated containers, etc. It will be one-story, estimated to cost close to $90,000, with equipment. W. Ellwood, Christman Building, South Bend, is architect.

Beaver Falls, N. Y.—The Beaverbrook Manufacturing Com-



Now they will cash-in on their investment

THOSE MILLS THAT PREPARED FOR COLD WEATHER WITH BRINER ECONOMIZERS

There would be no such steadily growing number of installations as we can point to if Briner Economizers were not considered an investment—rather than an expense. In the face of lowering market prices and narrowing profit margins, the volume of installation orders for Briner Economizers show the greatest gain.

Spending some money to save more money is good business—sound investing. And keen mill managers know that Briner Economizers not only pay for themselves from savings they secure—but continue to pay real dividends on the investment long after.

Now, with the increasing need for heat, Briner Economizers will effect huge savings by reclaiming and utilizing heat in waste vapor from machines, without large amounts of extra steam.

J. O. ROSS ENGINEERING CORPORATION

208 W. Washington Street CHICAGO — Main Office 30 E. 42nd Street, NEW YORK — 1117 Tacoma Avenue TACOMA, WASH.

ROSS ENGINEERING OF CANADA, LIMITED
NEW BIRKS BLDG., MONTREAL

ROSS SYSTEMS
HEATING—VENTILATING—DRYING

pany, Inc., recently formed with a capital of $50,000, to operate a local plant for the manufacture of paper containers, fiber boxes, etc. The company is headed by Howard and Harold S. LeFevre, both of Beaver Falls.

Brooklyn, N. Y.—Firneno Brothers, 573 Sackett street, waste paper stock, have plans for the construction of an addition to their storage warehouse, estimated to cost close to $21,000, and will begin work at an early date. Salvati & Le Quornik, 369 Fulton street, are architects.

New York, N. Y.—A. Hammer, Inc., care of Dr. Julius Hammer, 1488 Washington avenue, New York, operating in Russia under the name of the American Industrial Concession, for the manufacture of stationery products, pads, etc., is arranging for the sale of bonds to total about $500,000, the proceeds to be used primarily for the expansion of plants and property in Russia, with installation of additional machinery for increased capacity. The expansion program will be carried out in the near future. The company has a concession for a period of ten years. Employment is being given to about 700 operatives in Russian plants, and it is proposed to increase this working force to about 1,000 persons.

Green Bay, Wis.—The Diana Manufacturing Company, manufacturer of paper novelties, has begun the erection of a new addition to its plant for increased output, to be one-story, 52 x 55 feet, reported to cost about $18,000. Foeller & Schober, Green Bay, are architects.

New York, N. Y.—The Specialty Paper Bag Company, Inc., care of Samual Mann, 213 Fourth avenue, recently organized with a capital of $25,000, is said to be arranging the operation of a local plant for the manufacture of special paper bags and containers of glassine, waxed and other processed papers. Max Seutsch, 295 Convent avenue, is also interested in the company.

Clewiston, Fla.—In connection with a proposed cane sugar mill to be erected on local site by the Southern Sugar Company, 342 Madison avenue, New York, the Celotex Company, 645 North Michigan avenue, Chicago, manufacturer of wall board products, is reported to be projecting plans for a new mill in this same location, using the cane waste as raw material. The sugar company is affiliated with the Celotex Company. The wall board mill will be equipped for a capacity of more than 500,000 feet per month, and is reported to cost in excess of $1,000,000. No date for construction has as yet been announced. B. G. Dahlberg is head of both companies.

Baltimore, Md.—The Maryland Paper Mills, Inc., recently formed by Robert A. Wilson, 5 Hopkins Place, Baltimore, and associates, is reported to have plans maturing for the initial unit of its proposed new plant on tract of land acquired at Glenburnie, near Baltimore, to be one-story, 50 x 200 feet, equipped largely for bag manufacture. It is expected to cost approximately $100,000, with machinery. William W. Ormsbee is president and general manager of the new organization.

South Bend, Wash.—L. A. DeGuerre, Wisconsin Rapids, Wis., mill engineer, is said to have preliminary plans under way for the construction of a new sulphite pulp mill in the vicinity of the plant of the Columbia Box and Lumber Company, South Bend. The project will be carried out by a company now being organized and in which, it is understood, officials of the Columbia company will be interested. Machinery for log-cutting, etc., now at the Columbia plant will be used by the new concern. The sulphite mill will be equipped for an initial output of about 50 tons per day, to be increased at a later date. It is said that actual construction will begin in about 60 days. R. A. Swain is president of the Columbia company.

New York, N. Y.—Following the recent purchase of a large tract of timberland along the basin of the Restigoughe River, New Brunswick, the International Paper Company, 100 East 42nd street, New York, is said to have preliminary plans under way for the construction of a new news print mill in that district. The project will consist of pulp mill and papermaking units, the latter to be equipped for a capacity of about 200 tons per day, and is expected to cost in excess of $2,000,000, with machinery. Facilities will be provided, also, for pulpwood production, including logging, sawmill and other mechanical buildings.

Halifax, N. S.—The American Consulate, Halifax, W. Henry Robertson, consul general, reports that plans are maturing for the early construction of a new pulp mill on site in Nova Scotia, to be followed in the near future with a new paper mill, utilizing a large part of the pulp output. Estimated cost has not been announced. Information at the office of the Bureau of Foreign and Domestic Commerce, Washington, D. C., reference Canada No. 260466.

New Companies, Etc.

Brooklyn, N. Y.—The Fibre Products Corporation has been incorporated with a capital of $50,000, to manufacture fibre boxes, packages, etc., as well as paper containers. The incorporators are L. Irving and D. McDonald. The company is represented by Solon B. Lilienstern, 1501 Broadway, New York, attorney.

Kalamazoo, Mich.—The Paper Specialties, Inc., Kalamazoo, has filed notice of company dissolution under state laws.

East Providence, R. I.—The Fibre Products Company has been incorporated under state laws with capital of $50,000, to manufacture fibre goods, including boxes, containers, etc. The incorporators are Samuel Temkin, Judah C. Semenoff and Edmund C. Kelly, all of Providence, R. I.

New York, N. Y.—The American Blank Book Manufacturing Company, 150 Lafayette street, has arranged for an increase in capital from $45,000 to $125,000, for general expansion.

Dover, Del.—The O. K. Playing Card Company, care of Arley B. Magee, Dover, Del., has been incorporated with a capital of $100,000, to manufacture paper products, bristol-board specialties, etc.

South Bend Mill Plans Progress

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., December 1, 1927.—Construction of a 50-ton sulphate pulp mill in South Bend, Wash., is scheduled for an early start according to general information in pulp and paper circles in Oregon and Washington cities. Re-organization of the old plant of the Columbia Box and Lumber Company is now under way, according to previous short mention.

A group of officials have been in South Bend looking over the site and the prospects. Among these are R. A. Swain, president of the new company; A. E. Barry, secretary and director; S. H. Gaff, director and professor of mechanics and materials at Oregon State College; Fred Mendle of the Oregon State Corporation department at Salem; L. A. DeGuerre, chief engineer and designer, and V. K. Sturges and C. B. Burton, stockholders.

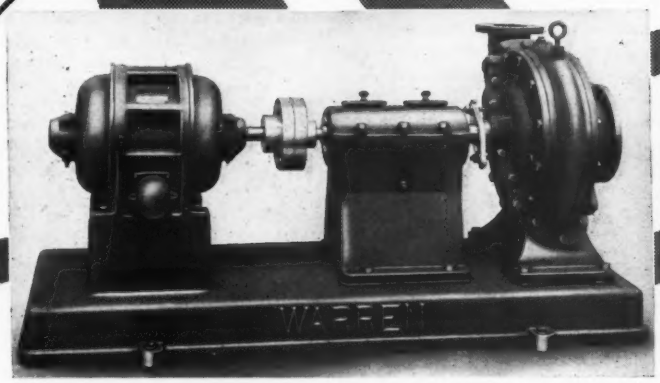
As soon as Mr. DeGuerre has plans in shape for presentation to the officials, the details will be considered and it is then proposed to get actual construction under way at once. Mr. DeGuerre has recently designed the new plant at Tumwater and the Schaffer mill at Tacoma.

Plans of the company include the construction of low head log dams in Austin and Skidmore or Knott creeks—tributaries of Skidmore slough. According to consulting engineers these dams will provide all-year-round water in sufficient flow for plant use. It is estimated that this flow will be capable of filling a 12-inch pipe with a 50-foot head.

The present log cutting machinery of the Columbia Box Company will probably be used to provide rough lumber and spruce and hemlock waste for the pulp mill and for fuel for steam power operations, the best of the hemlock being used for Jap squares for export.

The mill proper is to be operated on a one-shift-a-day basis and the pulp mill is to run six days a week with a three-shift-a-day basis. The entire operations of the plant it is expected will employ 125 men.

2 years ago—2 Today 50



Two years ago, 2 Warren Stuff Pumps were installed in a large paper mill. Their dependable service and economical operation resulted in the purchase of 57 additional Warren Pumps to be used in other mills operated by the same company.

Designed by engineers thoroughly familiar with pulp and paper mill conditions, Warren Stuff Pumps move stock faster, do not require attention and will not clog. Let us show you what they can do handling your kind of stock. Write for Bulletin.

Warren

Steam Pump Company, Inc., Warren, Mass.

Atlanta
Boston
Charlotte
Cleveland
Dallas
New Orleans
New York
WARREN
Oklahoma City
Philadelphia
Pittsburgh
St. Louis
St. Paul
San Francisco
Scranton
Toronto

1417

Miami Valley Superintendents Meet

The Miami Valley Division of the American Pulp and Paper Mill Superintendents Association met at Hamilton, Ohio, November 26, with H. H. Latimer presiding. After an excellent dinner at 6:30 o'clock, Mr. Latimer outlined the plans for a big membership drive.

A Plan for More Members

He emphasized the point that every member should do everything in his power to get new members. "It is the general impression," he said, "that to become a member, it is necessary to be superintendent, however, that isn't true. If a man has a number of men working under his supervision, or if he is a department head over the machines, beaters, finishing, engineering, etc., he is eligible to membership, just so he supervises the work of a number of other men. The fee is small. When mailing the announcements of this meeting, we sent a personal letter to superintendents of various mills not represented and were surprised to note the number of answers and inquiries we received. I believe if you members who are here tonight will follow this up with a little personal service, we are going to have quite a number of new members in the next few months. It will be worth while for they will derive a great benefit from the meetings and the speakers we are now getting."

Mr. Emingeer, national secretary, consented to a few remarks regarding the executive meeting held in Pittsburgh, November 6. He stated, "In all the experience I have had so far, the meeting at Pittsburgh was one of the most interesting ever held. In selecting a city for our spring convention, several places were suggested. However, after much thought and discussion, Pittsfield, Mass. was selected, and a tentative date set, May 31, June 1 and 2. But since we have been advised by the hotel in Pittsfield that it would not be in position to give us best accommodations at that time due to Decoration Day, at which time it receives many tourists, the Connecticut Division will have charge of these affairs, they will make the final arrangements and change the date if necessary."

To Meet in Hamilton January 21

The next regular meeting of the Miami Valley Division will be held in Hamilton, Ohio, January 21, at the Hotel Anthony Wayne. The entire program and entertainment will be sponsored by the Black-Clawson Company, Hamilton, Ohio and Shartle Brothers Machine Company, Middletown, Ohio. This will undoubtedly prove interesting as both Companies are well known.

To all the members who have problems and difficulties they would like to bring before the meeting, for instance, alum, beating, finishing, etc., it is suggested they send a note previous to the meeting, to the secretary of the Division, Mr. Johnson, in care of Beckett Paper Company, Hamilton, Ohio.

The purpose of this is to enable the committee to get in touch with well informed parties and thus give a best solution at the meeting. All members are urged to use the "Question Box". It's a good thing, well worth while and others will profit as well as yourself.

Mr. Latimer introduced C. P. Folsom, president of the Dayton Beater and Hoist Company, Dayton, Ohio who presented a paper on "Beater Design."

Beater Design

When Mr. Latimer asked me to talk to you on the High Speed Beaters, I told him that my talk would have to be read as talking before an audience is one of the many things that I am unable to do and there is considerable doubt in my mind as to whether I can tell you much that will be of interest. However, these meetings are held for the purpose of enabling each of us to learn more about his own business and any exchange of ideas must prove beneficial to all concerned.

You are all men who know the art of paper making and who possess expert knowledge on every detail essential to its production, while I stand before you as a manufacturer of machinery used in but one department of your mills, namely the beater room.

For many years little advance was made in beater design that would lead to greater prodction for the power consumed and floor space used. While the manufacturers added some refinements, these were to a great extent like many of the accessories on your automobile, made to aid in the sale of a particular make and did nothing to really better the work of preparing the stock for the paper machine. It was taken for granted that a beater was a beater and that was about all there was to it.

On the contrary, there is much to be said on the subject of efficiency and increased production in the beater, and during the past fifteen years the Dayton Beater and Hoist Company has carried on an extensive research program, the result of which is the present day High Speed Beater which has given performance records that a few years ago would have been considered next to impossible. These results are such that we are convinced that the slow traveling power consuming Holland type will have to give way to the new comer.

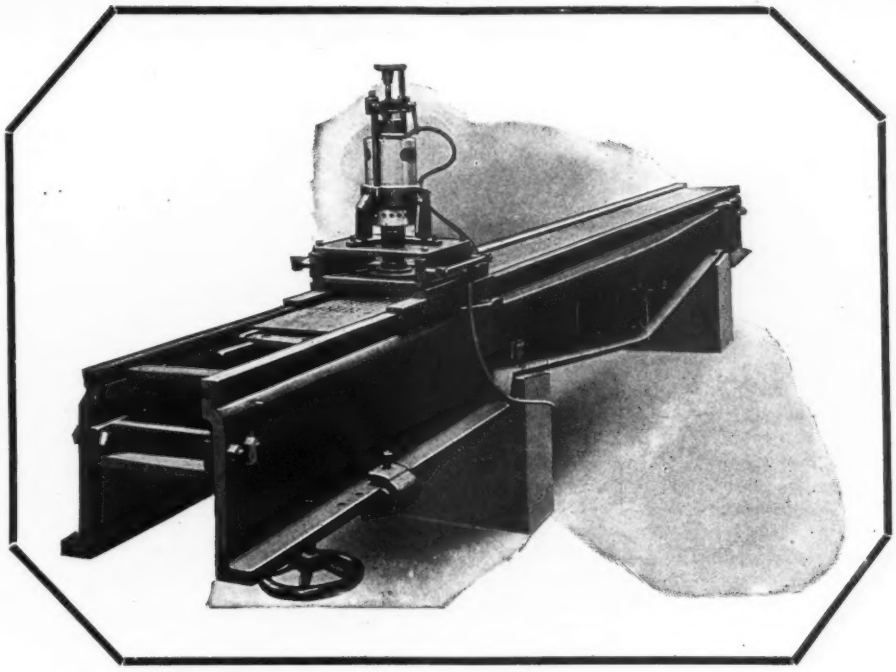
Faster Travel, Increased Capacity, Etc.

These results are faster travel, increased capacity for floor space used, more uniform stock produced, shorter beating time, less power consumed per ton of stock handled and a reduction in labor required for operation.

With the slow traveling beater a travel speed of twelve feet per minute was not unusual and twenty feet was exceptional. With the High Speed Beater the stock will travel forty to fifty feet per minute and we have had cases where as high as one hundred and twenty feet has been obtained, and these speeds are obtained with higher densities than in the old type beaters. Being able to run heavy stock makes for greater capacity and with the greater depths of tub gives increase of capacity, for the same floor space, ranging from 50 to 100 percent.

Owing to the study that has been given to the form of the channels and bottom, the dead spots so often found in the old type beater have been eliminated and more uniform stock produced owing to the fact that all of the stock passes the roll the same number of times. Reduction in beating time naturally followed more uniform beating and this added to the increased travel, which means more times for the stock to pass the roll, has in many instances reduced the beating time 50 per cent, this saving in time being more noticeable where stock is handled that requires a long time in the beater as not so much of the cycle is consumed by furnishing and dumping.

Taking a High Speed Beater of equal roll diameter and face with that of the slow speed type the power consumed by the individual beater will be somewhat greater than the slow speed type, say 40 per cent, but the High Speed Beater will carry 50 per cent more stock and reduce beating time, say one third. Taking an average example of a 1,000 pound beater of the old type using 40 H. P. and requiring three hours to beat off, you would have 120 H. P. hours to produce 1,000 pounds of stock. If converted into a High Speed Beater it would have 1500 pounds capacity using 56 H. P. for two hours or 112 H. P. hours for 1500 pounds of stock or 74 2/3 H. P. hours per 1,000 pounds, making a saving of approximately 39 per cent in power. This carried into dollars on a year's production in a mill of any size makes an amount cut from the cost of production that cannot be overlooked in this day of sharp competition. Add to this the reduction of labor cost, as in many mills where installations have been



Maintain an Absolutely True Surface on Suction Boxes!

Without unnecessary delay—without variations—without the time and labor involved in hand planing, the machined surface of your suction boxes can be accurately and quickly restored. This can be done with the Valley Suction Box Planer. Once installed this planer will be constantly used. It will become a necessity for efficient paper machine operation. It will eliminate the troubles in maintenance of suction boxes experienced where hand planing must be done.

With the Valley Suction Box Planer the operator can quickly restore an absolutely true surface to the box. It requires little space—can be located in any convenient space in your machine room or maintenance shop alongside a wall without interfering with other equipment. The planing device proper is portable, and can easily be taken from its operating position for safekeeping with other valuable tools. The planer is a single compact unit, and requires only electrical power for operation.

The convenience and accuracy of the Valley Suction Box Planer will enable your men to plane down the box to its minimum useful thickness. And, the saving in time and labor over hand planing makes this equipment one that will earn its cost. Investigate the Valley Suction Box Planer today. It can earn profits in your mill too. A new descriptive bulletin will be sent upon request. Write for it now.

VALLEY IRON WORKS CO.

Machinery for Paper and Pulp Mills

APPLETON WISCONSIN

New York Office: 350 Madison Avenue

Western Manufacturing & Sales Division,
Smith & Valley Iron Works Co.,
Portland, Oregon

made it has been found possible to get a large increase in production without the employment of additional labor in the beater room.

Better Test Obtained

More uniform stock makes a better sheet, reduces broke and we have many reports that a better test is being obtained without any change in the furnish.

In building new beaters we have put out the double midboard and single midboard type. The double midboard type has a short spindle, the bearing being placed between the two midboards and the spindle not running through the stock. This gives a narrow channel on one side unless a very wide tub is used. The single midboard type is similar to the slow speed type beater except that the tube is deeper and the spindle is buried in the stock on the open channel side. This type gives a greater capacity for the same size tub and the final results are about the same. This type is now used almost exclusively in rebuilding to the High Speed Type as it does away with the trouble and expense of cutting off the spindle.

In the case of new beaters we can control the design to such an extent that very uniform results can be obtained but in rebuilding old beaters to the High Speed Type there are many fixed conditions to be met, many of which are bad, and each case must be worked out to give the best possible results under the existing conditions. All diameters of rolls and width of face are found, some in long narrow tubs, others in short wide tubs and the number of bars varies greatly. The correct spacing of the bars is one of the most important factors and one that is most difficult to correct in rebuilt work. In cases where the roll needs refilling we have used dummy bars for every fourth, fifth or sixth bar depending on the spacing and size of roll. In other instances where the roll has been in good condition we have obtained the same results by burning off some of the bars even with the top of the wood filling. The roll and bars must be kept in good condition to get efficient results for unless the roll is putting the stock over the fall block, fast travel cannot be maintained. This will apply to any beater and we believe it is becoming more general among users to keep roll bars in good condition as the loss of power and production with worn bars more than offsets the more frequent renewal of bars.

Roll Speed an Important Factor

Roll speed is also an important factor and with properly spaced bars good results can be obtained anywhere between 1600 and 1900 feet per minute, the size of roll and kind of stock handled must be taken into consideration. From all the data we have been able to obtain, any speed in excess of 1900 feet only consumes power without benefitting the travel of the stock or time of beating.

Fall block and hood proportions will change with the diameter of the roll used and the kind of stock to be handled, and we are gradually working out curves that will apply to these various conditions. You will realize that it is very difficult to get accurate data on all of the various factors that have a bearing on results as in many cases where installations are made the beaters are line shaft driven and no power reading can be had, while with motor drives the power consumption can usually be obtained, yet other conditions vary in different mills to an extent that often times makes comparisons difficult.

With steep sloping bottom of the High Speed Beater and the large fillets giving it a rounded form, much quicker and cleaner dumping can be obtained. We are using every effort to get users to install large diameter valves and discharge pipes in order to cut down the dumping time. When a beater is ready to dump the beating is completed and if fifteen or twenty minutes are consumed in this operation when it can be done in two or three, the difference in time is just so much loss in power consumed and in production. With proper water connections for flushing out the stock, raking down is almost entirely eliminated.

Consistency of stock has been talked about a great deal and any one who has tried to operate the old type beaters on consistencies of 7 or 8 per cent knows how little movement can be obtained in the tub but with the High Speed Beater these consistencies can be run with a travel of 30 to 40 feet per minute and it is not unusual to see a High Speed Beater handling 6 per cent stock at 50 to 60 feet per minute.

With approximately 400 High Speed Beaters in operation in over 70 mills, on nearly all kinds and grades of paper, we feel reasonably safe in stating that the High Speed Beater will work on any stock that the old style slow speed beater will handle, and at the same time do the work quicker, produce a better grade of finished stock, and at a lower cost per thousand pounds. We do not wish to bore you with the details of a lot of reports but a few which are characteristic of all the installations may not be amiss.

Mill "A"—Book

The number of High Speed Beaters required was approximately 60 per cent of the old type with an increase of 24 per cent in total output. Reduction in beating time from four hours to one and one-quarter hours. Reduction in cost of beating 26.9 per cent.

Mill "B"—Bond, Offset and Book

Number of High Speed Beaters required was 2/3 of old type with output increased 115 per cent. Reduction in beating time from 2½ hours to 1¼ hours. Reduction in beating cost 46.2 per cent.

Mill "C"—Board

No reduction in number of beaters or in beating time but output increased 50 per cent and cost reduced 20.8 per cent. Old were not giving sufficient time for beating.

All report a better sheet with increase of tests very noticeable.

Over 80 per cent of the orders received for Dayton High Speed Beaters have been placed following the first installation which fact leads us to believe that the users are getting results.

The Stomach of the Mill

One of our Miami Valley mills has most appropriately termed the beater the "stomach" of the paper mill and as such the beater is certainly being given some mighty hard food to digest and in numerous instance a little pre-digestion could be done that would make the life of this part of the paper mill much longer and more efficient. In many cases the beater is made to do the rough work, of breaking up and preparing heavy coarse stock that should be done either by shredding or in a large breaker, and is still expected to produce a finished stock that is up to the highest standard.

The rough work often requires equipment of a different class than would be needed if it were done elsewhere and does not lend itself to the highest efficiency for the more refined part of the work. I believe that the total power consumption per 1,000 pounds of stock can be reduced, particularly on bars, as much of the cause of bent and broken bars would be removed which would at the same time obtain a more efficient action on the stock between bars and bed plate, as these parts would then be designed for more uniform work. Much of the repair account on lighter rig and bearings would be removed, not to mention broken spindles, a large portion of which comes from the jumping of the roll when doing the rough work.

And now, in conclusion, let me ask you to take home with you this one thought. We are in this game to help each other and by working together much can be accomplished. You are using this equipment every day and know what you wish to produce and we are building machinery to give you the results you wish to secure. We want you to tell us what you need and we will do all possible to give it to you. I also wish to acknowledge the many valuable suggestions I have received from some of you and those in other parts of the country, thank you.

Beater Tackle

F. M. Gloyd, of the A. A. Simonds-Dayton Company, Dayton, Ohio, presented a paper on "Beater Tackle." This paper was

LONGER FELT LIFE

The patented process by which Kenwood TANNED Felts are treated counteracts the deteriorating effects of water, alkali and acids, resulting in longer life of the Felt. But in

KENWOOD TANNED FELTS

even this advantage is overshadowed by OTHER resulting advantages—

The Kenwood tanning process also gives

A SOFTER, KINDLIER HANDLE
QUICKER "BREAK-IN"
LESS RUNNING TROUBLE
HIGHER WATER REMOVAL

F. C. HUYCK & SONS

KENWOOD MILLS, ALBANY, N. Y.
KENWOOD MILLS LTD., ARNPRIOR, ONTARIO

prepared by Mr. Herbert Simonds of that company. The paper was as follows:

The paper making industry is always interested in improving the quality of material produced, and in its search for efficiency has developed a number of general types of beater bars and bed plates.

The earliest type was the mill rolled steel bar. This had a somewhat higher carbon content than ordinary commercial quality of steel. It was rolled with a tapering shape, thicker in the center to give the necessary strength. As it wore down it gradually became heavier on the edge. If there was no acid, it flattened out and consequently changed both the quality and quantity of production, becoming less and less efficient. If there was acid the life of the bar was frequently cut very short.

It was then discovered that heat treating this carbon steel bar hardened the outside surfaces and gave a more uniform structure to the steel. It increases the strength and life and decreases the burring under heavy beating to some extent.

But some paper makers were not satisfied for long, with this improvement. Finally an alloy steel bar was worked out. This type of steel when heat treated changes in structure and hardens clear through. It is much denser and has a much higher tensile strength. The edges do not have nearly the same tendency to burr, and stay sharp during the whole life of the bars.

Briefly, the ordinary carbon steel beater bar after forging shows a hardness to between 25 and 30. Heat treating this carbon steel bar increases the shore hardness to between 35 and 40. The alloy steel beater bar has a shore hardness of from 45-50.

The Acid Problem

In many mills there still remained the awful nightmare of the "Acid Problem." This has been contended with by plating either a heat treated carbon bar or an alloy bar with some metal which is acid resisting, nickle and copper or copper alone. In some places this has proved a solution of the problem, but it has not worked out as a complete cure-all. It is not impervious to all acids and it is extremely difficult to have the plating well done. One little break in the plating causes a good deal of the plating to scale off.

For these reasons it seemed almost imperative to find a truly acid resisting metal. Bronze has been tried but it has not been over successful owing to its lack of strength.

Alcumite, a New Metal

A new metal has been recently developed which comes nearer to meeting the necessary requirements than anything we have so far found. This is alcumite—a copper alloy. Testing this material shows approximately the same shore hardness as the ordinary carbon steel bars. The structure of this metal is extremely dense when properly rolled and forged and without which work, the material is not strong enough; the forging of it increasing the strength very rapidly. It is so difficult to forge that we have broken four or five rolls in rolling it to shape. It is strictly acid proof and free from all rusting.

A set of these bars is being tried out where the beating operation is not severe but where the acid condition is very bad. After eight months there is practically no trace of destruction by acid.

Unfortunately the original cost of the material is high and it is so very difficult to handle that the price of a set of bars is considerable. However, we believe that when all factors are taken into consideration it may prove a real economy. Since the rust is eliminated and the acid bugbear disposed of, the length of life and production from a set of bars will more than compensate for the high original cost.

The early beater bars were all made straight, generally tapered toward the cutting edge. Later the corrugated bar was developed. If one wants to get an idea of the additional strength of the corrugated edge, take a piece of thin tin about three inches long and half an inch wide and bend it. Then crease into shape of the corrugations and again try to bend. The difference is immediately apparent. These corrugated edges also stand more shock and wear down much more uniformly. In examining a number of rolls that have been in service for a period of time from six months to three years one finds that few, if any, of the corrugated bars show any deflection. Each bar is passing over the plate in position as intended. This, of course, means more uniform stock and greater production.

Difficulty Overcome

Occasionally there is a complaint that this type of bar is taking more power. We have found that this difficulty is very frequently overcome by a little more careful filling of the beater with the stock. If the stock is dumped in too fast it is very apt to choke up and until the load is distributed, the power pull is very heavy.

Each mill has worked out some particular style of bed plate which gives it satisfactory results. With the straight bar an angle or diamond plate is more often used. With the corrugated bar a straight plate can be efficiently used. There must be some shearing action to make a good quick stock. As a general rule it is better to have the bed plate about ten points softer than the beater bars.

The Newest Development

The newest development that we have made in the bed plates is the so-called open-center plate. A space of about three inches is left in the center of the plate by the use of a small channel iron and I beam through which large holes are drilled.

This allows the water to circulate much more freely between the beater roll and bed plate keeping the stock much cooler. The stock in beating produces paper of an inferior quality. The open advantage is immediately apparent, since excessive heating of the center type shows the water circulation in center and no filling up or packing of the stock.

Almost any type of plate can be handled in this design, angle, combination or straight plate with circle set off center on one end.

A largely increasing demand for the corrugated bars and open center bed plates has convinced us that we have been helpful in the ever forward march of the paper making industry.

Those in Attendance

Among those in attendance were the following:

H. H. Harrison, Crystal Tissue Company; A. Hess, Fibre Conduit Company; Edw. H. Butterfield, Jack Smith, Sr., John Ditmyer and Jack Smith, Jr., Gardner & Harvey Company; C. L. McKasson, R. C. Warder, Chas. Soule, Roy W. Maggart, A. O. Rolfe, H. C. Ferguson, A. C. Mack, Frank Hixon, Arthur Gardner, James Ramsey, and K. L. Jackson, The Champion Coated Paper Company; H. D. Martindale and C. R. Crawford, Shartle Bros. Machine Company; C. H. R. Johnson, Beckett Paper Company; Jas. M. Fallon, and Harry Ross, Beveridge Paper Company; Lee Shroads, I. M. Deck, A. H. Barlow, M. L. Barker, and W. W. Galloway, Hagar Straw Board and Paper Company; Frank Meily, A. P. Allison, and F. M. Gloyd, A. A. Simonds-Dayton Company; H. H. Latimer, Beckett Paper Company; C. P. Folsom, The Dayton Beater and Hoist Company; Rob't L. Eminger, National Secretary of Superintendents Association; Allan Hyer, Black-Clawson Company; W. H. Cunningham, Mead Pulp and Paper Company; Ross Auvil, Crystal Paper Company; V. Friedrich, Jr. and A. J. Wildman, Jr., Beckett Paper Company; Lawrence Story, Olav Flatland, and William C. Worst, Container Corporation of America; J. R. Hartman, and R. G. Wolfinger, Union Gas and Electric Company.

A Letter for Paul Tacussel

There is a letter at this office post marked Stockholm, Sweden for Paul Tacussel, Esq. If Mr. Tacussel will send his address to this office, we will be glad to forward the letter.

Appleton Felts and Jackets

When gold was struck upon the Klondike 1896-97

The Klondike gold rush of 1896-97 marked another historic event that opened a new territory to the march of progress. Fortunes were made and lost, and many were the privations suffered.

In 1896 Appleton Felts and Jackets were being preferred by paper mills in this country, having passed the first five years of making felts. Now, for 36 years Appleton Felts and Jackets have been preferred by paper mills—preferred because of quality and service, durability, adaptability, accuracy, design, produced by a plant control that checks every detail of operation during manufacture.

Your felt requirements can be filled with entire satisfaction. Write and tell us your requirements, and let us help you solve your felt problems.

APPLETON WOOLEN MILLS
APPLETON, WISCONSIN

QUALITY SERVICE

Power Plant Section

To Promote the Most Efficient and Economical Distribution of Power

Reducing Power Costs Through Unit Treatment

Conducted by REGINALD TRAUTSCHOLD, Consulting Engineer

Steam Traps And Steam Purifiers Yield Handsome Returns

No paper mill can be economically operated without a full and suitable complement of steam traps, properly located and maintained in efficient operating condition. In fact, these so-called accessories for condensate drainage, etc., are the units which afford the means of effecting what are probably the greatest of all economies, and return the highest yield on investment to be found in power plant or mill.

A well known paper mill in the East had this brought to its attention quite recently in a manner sufficiently striking to justify repetition, inasmuch as the savings effected can doubtless be realized in many another paper mill. Previous to a well planned installation of steam traps and a few incidental changes their use made possible, a continuous supply of coal had to come to the mill by rail, any interruption to which would have precipitated serious losses. With the installation of the traps, however, the coal requirements of the plant became at once so greatly reduced that demurrage bills on coal consignments were promptly presented by the railroad, for it was quite impossible with the facilities then existing to unload the coal cars sufficiently rapidly to avoid such penalty.

Previous mill practice, details of which need not be mentioned, entailed approximately 80 per cent. make-up water for the boilers with the result that scale accumulation in the boilers was so rapid and serious that a boiler had to be shut down for cleaning every six weeks. Such shut downs reduced the boiler battery capacity to such an extent that the driers could not be supplied with adequate steam during the three days needed, eight or nine times a year, for servicing the boilers. This meant the loss of substantially a week's production for half the mill each time a boiler had to be cleaned, to say nothing of the expense of cleaning, increased overhead attributable to half the mill being rendered unproductive a full month each year, decreased boiler efficiency and consequent increase in fuel consumption, loss in mill profits and other drains upon the mill income.

So serious were these losses in the aggregate that the purchase of an additional boiler, entailing an investment of $7,000 or $8,000, was seriously contemplated, in order to avoid the yearly loss of some 200 tons of mill output attributable to the enforced partial shutdowns when boiler cleaning. The investment would have been well justified for this one reason alone. Instead of buying the additional boiler, however, two suitable steam traps were purchased and some simple, though highly important, changes were made in the practices of steam and condensate utilization, at a total expense for equipment, materials and complete installation charges of about $2,000.

This relatively inexpensive installation increased the yearly output of the mill by something like 4 1/3 per cent., distributed overhead over a gross income of a good many thousand dollars more than had previously been attainable, saved about $12,000 a year in coal purchases, avoided the tying up of at least $6,000 additional capital in steam plant equipment and the burden such extra investment would have entailed. This in substance is the annual yield directly traceable to the proper installation of two steam traps, which cost but a fraction of the $2,000 covering the cost of the complete modification in mill equipment and practice. Within eighteen months, a second mill of this same paper company was modified in like manner, and there are without question many other mills which could follow suit with equal or greater advantage.

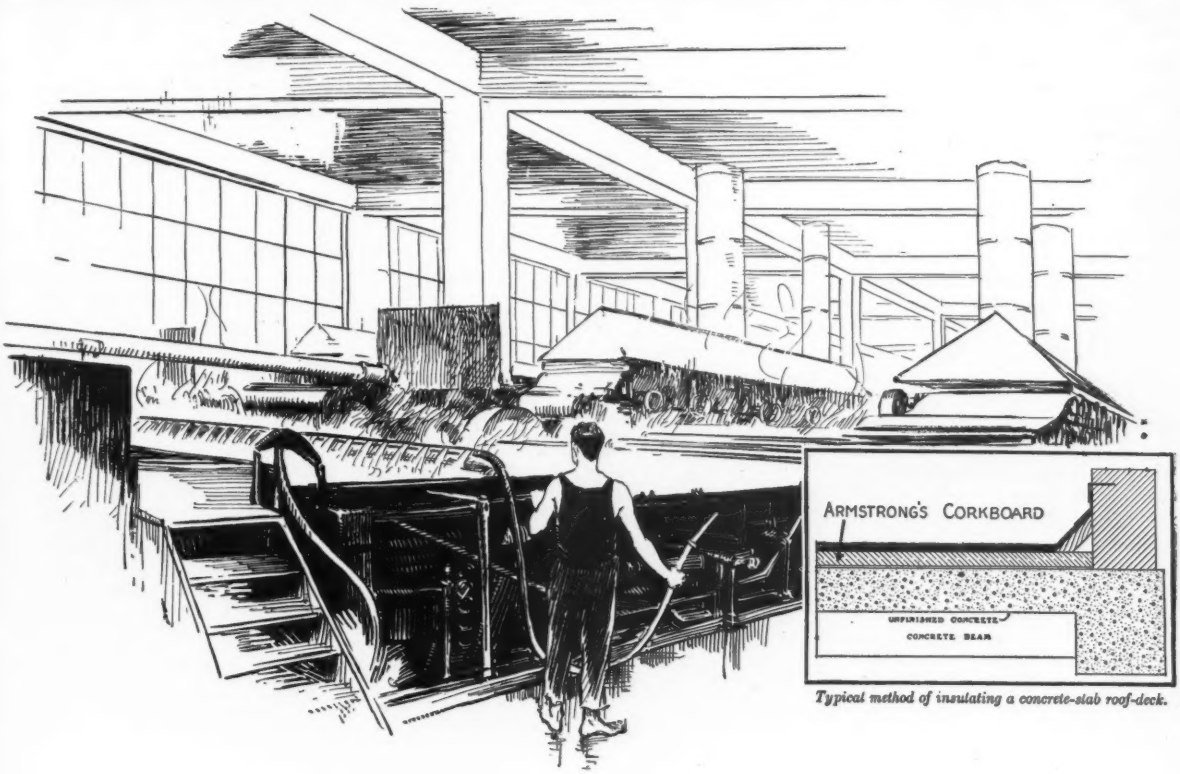
Steam Trap Classification

The traps responsible for these particular economies will not be described, for there are numbers of highly efficient steam traps of approved types on the market today, the respective merits of which should properly be advanced by their manufacturers. However, a general classification of such essential devices may facilitate an appreciation of the points to be considered in order to meet best the various conditions encountered in and about the paper mill and its power plant.

The first consideration is whether to employ non-return or return traps. The former are probably the more commonly used about the paper mill and are distinguished by having a higher inlet pressure than the pressure against which they discharge. The latter, also known as lifting or vacuum traps, are those which discharge against a higher pressure than that of admittance. For this reason, an auxiliary steam or air pressure line is employed to provide the agency for trap discharge. They are employed, obviously, in connection with the condensing operation of prime movers and other services where steam is exhausted at less than atmospheric pressure.

Steam traps may also be classified according to principles of operation, *i.e.*, mechanically operated or thermostatically operated devices. Mechanical traps are actuated by the weight or pressure of the entrapped water, regardless of its temperature, and may be sub-classified as bucket, float, tilting or piston type traps. The thermostatically operated devices either employ a metallic element which depends upon the differential expansion of two metals for actuating the trap or upon a bellows or diaphragm filled with a liquid or gas which is susceptible to slight temperature changes between predetermined points. These traps depending upon thermal action open at a set temperature and remain open until the temperature has increased and the expanding element closes the discharge valve.

In the case of mechanically operated traps, those of the bucket tilting and piston types are of the intermittent discharge variety, being closed and shut off until sufficient water has accumulated to open the discharge valve wide when the traps empty themselves. The float type trap on the other hand, is seldom either wide open or tightly shut. Its operation is dependent upon the height of the water within the trap body. As the water rises, by being more rapidly collected by the trap, the float rises likewise and opens the discharge valve wider, so the trap can rid itself more rapidly of the



Typical method of insulating a concrete-slab roof-deck.

Sweat-proof Concrete Roofs

MOISTURE collects under uninsulated concrete roofs because their heat resistance is so low that cold outside air chills the under surface to, or below, the dewpoint. But that can be corrected quickly and simply by insulating the decks with Armstrong's Corkboard.

Armstrong's Corkboard, because it is so highly heat-resistant, keeps the ceiling temperature *above* the dewpoint. In any but the most severe conditions an adequate thickness of Armstrong's Corkboard will entirely prevent condensation and the resultant drip. Even where the air is saturated with moisture, Armstrong's Corkboard will go a long way toward eliminating ceiling sweat.

Armstrong's Corkboard is not expensive. Neither is it difficult to apply. It can be used on new roofs or old and upon any type of roof deck.

This Book Free to Paper Mill Men. Armstrong engineers have had years of experience in dealing with the condensation problem. The results of this experience have been published in a book titled, "The Insulation of Roofs to Prevent Condensation," a copy of which will be sent on request. Address Armstrong Cork & Insulation Company, 217 Twenty-fourth Street, Pittsburgh, Pa. McGill Building, Montreal, 11 Brant St., Toronto.

Armstrong's Corkboard Insulation

for the Roofs of All Kinds of Buildings

accumulating water. Theoretically, these traps discharge at the same rate at which the water enters. In practice, they do so approximately, and are termed continuous-flow traps.

There are, of course, many modifications of these general types of steam traps, which it will well pay the interested mill to look into. No great investment is entailed in the purchase of any, and the possibilities of realizing very substantial savings in steam consumption, boiler plant maintenance and fuel conservation, as well as the attainment of marked increase in mill output and improvement in quality of product through the better utilization of process steam are so very pronounced that time to investigate the various approved steam traps is well expended.

Simple as the functions of a steam trap appear to the uninitiated, nevertheless to drain automatically all of the condensation from the heated, drier, pipe line, or whatever receptacle the trap serves involves a real engineering problem. The success or failure of the drainage system is dependent more upon the method of installing the trap and the care taken in its operation than to the possible strength or weakness of the trap itself.

While this would seem to place the responsibility of proper trap selection in the hands of qualified engineers or of specialists in the use of boiler plant accessories only, there are a few general points pertaining to the proper selection of such devices with which the purchaser or the authorized mill representative should be familiar and for which he should ever be on the lookout. These are not involved considerations and deal with the proper installation of the traps and the attention which should be accorded them, quite as much as they do to types and varieties of traps.

Naturally, something has to be known regarding the operating conditions encountered, for it is not advisable to install traps larger than required. A trap of sufficient capacity to handle the service encountered is not only cheaper but is more efficient than a trap of greater capacity than necessary. However, a trap should invariably be selected which has sufficient capacity to discharge the heaviest rush of condensate reasonably to be expected, and this is quite usually several times as great as the amount of condensate handled under normal operating conditions. It should be appreciated also, that while a so-called high pressure trap will operate on low pressure, it would have much greater capacity under such conditions if fitted with a discharge-valve orifice for low pressure service Possibly, a smaller trap would suffice. A low pressure trap, however, will not operate successfully on high pressure.

The question of proper orifice to employ is highly important, for the ultimate discharge capacity of a non-return steam trap is determined by the size of the orifice and the square root of the pressure differential, the latter being the difference between the pressure on the inlet of a trap and the pressure at the outlet, or against which the trap discharges. In spite of this, there are thousands of steam trap users who have installed traps with discharge-valve orifices many times smaller than the inlet pipe to the trap, without any apparent consideration to the operating pressure.

The higher the pressure, the smaller should be the orifice, but for any definite pressure differential there is a particular size of orifice with which the ultimate capacity of the trap is attained and for which the economical discharge piping and fittings are proportioned. This, obviously, should be based upon the heaviest rush of condensate reasonably to be expected, not the normal discharge, for if the orifice is made any smaller the hourly discharge rate of the trap for a given pressure differential is very materially reduced, entailing the use in many instances of a larger trap than that most efficient for the service.

The efficient trap is the one which handles the condensate at a temperature as near that of the entering steam as is feasible, with reasonable consideration to possibilities of abnormally heavy rushes of condensate. With process or exhaust steam at pressures commonly employed for paper drying and water heating, the condensate can frequently be returned to the boilers at a temperature of from 50 to 75 degrees higher than the temperature of saturated steam at atmospheric pressure. Such conservation of heat effects substantial economies in fuel consumption.

This all adds to the importance of proportioning the exhaust valve orifice of the trap to the pressure differential and in this connection the back pressure on the valve is all important and also the location level of the trap in reference to the lowest point to be drained. It is entirely practicable to have a non-return steam trap discharge against a head of water, for instance, but the pressure exerted by such head should be deducted from the pressure within the trap in determining the actual pressure differential. About 2.3 foot water head is equivalent to a pressure of 1 pound per square inch, but as the friction through connected piping, etc., must be deducted as well as the static head, a ratio of 2 feet per pound pressure is ordinarily adopted for general computations and check-ups.

Trap Location and Provisions for Servicing Traps

The trap itself can also be set at a higher level than the bottom of the receptacle drained, provided there is a water seal ahead of the trap. In such installations, the pipe leading to the inlet of the trap should leave the space to be drained at its lowest point and should descend before running up to the trap. Under such circumstances, the pressure equivalent to the elevation of the trap above the drain point should be deducted from the pressure within the trap in determining the actual pressure differential.

In trap installations, a shut-off valve should always be placed in the inlet pipe, or an even better arrangement is to provide a by-pass connection with suitable valves, so that proper attention may be given the trap at any and all times. With the by-pass connection, the condensate can be discharged through the by-pass while the trap is opened for inspection, the changing of valve seats or cleaning. Strainers or separators should also be placed in the inlet pipe to the trap to prevent the entrance of foreign materials which would clog or choke the valve ports

Without such guards to the entrance of debris entrained in the steam, the trap, particularly if it is installed at the lowest point to be drained, becomes a natural receptacle for the scale and sediment carried through the steam pipes. An efficient strainer in the inlet pipe will arrest perhaps 90 per cent. of this waste accumulation, but fine scale or other sediment will seep through and lodge in the trap. Proper trap operation, hence, calls for the periodic blowing-down of the trap to free it from such dirt. Such cleanings need be far less frequent, of course, if an efficient system of steam purification is employed, as is becoming quite general in the more efficient paper mills.

Steam Purifier Drainage Traps

Before briefly discussing the benefits secured by virtue of an approved stem purifier, however, it is advisable to draw attention to the exacting service demanded of the steam trap required for draining such steam purifiers. In such service, the trap is in effect secondary to the purifier, it is true, the latter performing the work of separating the entrained water from the steam and of collecting the foreign matter which may be present, while the trap serves simply to dispose of the accumulation, but the trap must do its lesser share of the work with very high efficiency. If this is not done, the effectiveness of the steam purifier is greatly lessened and if the boiler should foam or prime badly a considerable amount of water is almost certain to pass through into the steam lines.

The approved steam trap for steam purifier drainage service should be of very generous capacity and be able to discharge a large volume of water almost instantly, in case the boilers prime or foam. Secondly, on account of the large amount of dirt, boiler compound, scale and other foreign matter removed from the steam with the entrained water by the efficient steam purifier, the trap should be as immune as possible to injurious effects of dirt and scale upon its actuating parts. This calls for a very wide and quick opening of the trap in order to secure the speedy and full opening discharge essential. The discharge-valve orifice should be considerably larger than that which would suffice for service in installations further removed from the steam generator. To meet these exacting

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requirements, non-return traps of the piston or of the compound types are customarily considered essential.

One peculiarity of the water handled by the steam purifier drainage trap is that it is, not only very apt to be dirty from the accumulation of sediment removed from the steam by the purifier, but it is entrained water which has never been vaporized into steam. For this reason, it contains the same proportions of dissolved and suspended impurities as the concentrated water in the boiler and should not be used as boiler feed water or for other purposes where the use of such contaminated water is objectionable.

Dangers of Impure Steam

In an industry so dependent upon the economical and efficient utilization of steam, not only for power but also for process heating requirements, as that of pulp and paper making, it is not at all difficult to picture the truly substantial savings to be effected through the utilization of reasonably pure, so-called "standard specification," steam. This is forcibly done by reviewing briefly some of the dangers and costs of using impure steam, such as will ordinarily be generated by any power boiler under customary operating conditions unless provisions are made to purify the steam on its delivery at the steam nozzle of the boiler.

Impure steam is virtually unavoidable at the boiler steam drum, for in commercial practice the water supplied the boiler it not absolutely pure. It contains mineral matter in solution and usually both mineral and vegetable matter in suspension Chemical changes take place, aggravated by the heat, and some of the impurities are thrown down and are deposited as hard scale on the inside of the boiler surfaces. As steam is generated, the concentration of impurities in the un-vaporized water gradually and constantly increases, causing what is known as foaming, unless the boiler is blown down so frequently as to make such riddance of impurities excessively expensive in waste of water and heat.

The result is that invariably some proportion of the foam and entrained water, which is of the same impurity concentration as the water in the boiler, is carried over with the steam to the superheater, if one is employed, or through the steam header to the turbines, engines, pumps, reducing valves and other apparatus, cutting, clogging, eroding and fouling. If a superheater is employed, the damage done is aggravated by a lowering of the efficiency of and by damage to the superheater, from which the resulting dry gritty dust will then pass to the other power and heating devices to complete a cycle of destruction.

A 1,000 horsepower boiler operating at 200 per cent. of rating and carrying 1 per cent. moisture with the steam, a record which is far better than those which actually pertain in a very large number of paper mill power plants, will carry some 600 pounds of entrained boiler water into the superheater or steam mains every hour. If the boiler water is at an impurity concentration of 200 grains per gallon, which is also far from being an unusual condition, such a boiler in the continuous service demanded in paper mill operation would carry over during the year close to nine tons of damaging impurities, depositing them on the interior surfaces of superheaters, turbines, engines, piping, fittings and all mill and power plant equipment to which steam may pass.

The resulting damage to bearing surfaces, valve seats, ports and by the thermal insulation the disposition of the impurities upon heat transmitting surfaces creates, obviously, constitutes a heavy expense and explains the heavy repair and maintenance expenses common to power plant equipment and other actuated apparatus where provisions are not made for effective steam purification.

The magnitude of these expenses is seldom appreciated until a mill has installed efficient steam purifiers for providing standard specification steam. Such steam is about free from all solids, soluble and insoluble, when condensed showing not more than 9 parts total solids per million, and is free from moisture to the permissible variation of not more than 0.2 per cent. from absolute dryness. Before touching upon the requirements for effective steam purification, consequently, a few specific instances of typical savings effected in paper mills by the installation of steam purifiers may be cited and will serve to add considerable interest to such devices.

The Champion Coated Paper Company, Hamilton, Ohio, for illustration, effected an annual saving of $1,200 in maintenance changes on one 2,000 kilowatt turbine, when it installed an effective system of steam purification, by virtue of having to clean it only one-third as often and the fact that the turbine does not become so fouled between cleanings and requires only half as much time to be serviced as before the installation of the steam purifiers. The cleaning of a smaller turbine, a 600 kilowatt unit, is also so simplified that an additional $1,200 a year is saved. The clean steam is also responsible for an increase of 7 degrees in the superheat of the steam supply and this in connection with materially lessened blowdown water and heat wastes accounts for an annual saving in coal consumption valued at $1,350 per year.

The avoidance of thorough turbine cleaning twice a year through the installation of steam purifiers at the Eagle Paper Company, Joliet, Ill., effects an annual saving of $500 Another marked improvement at this mill is an increase of 26 per cent. in the output from the driers, half of which is attributed to the fact that the purified steam is freed of all solids and of any entrained water.

At the Robert Gair Company, Montville, Conn., slugs of water formerly driven off from the boilers and through the superheaters washed out all the lubricant from the engine cylinders, making ring replacements and cylinder re-borings a continuous source of trouble and expense. The installation of an effective steam purification system eliminated this burden almost completely, and very materially increased the efficiency of the engines. This betterment in engine operation together with the accompanying higher superheat attained reduced the item for coal consumption by $4,375 a year.

Similar purification of steam supply at the American Box Board Company, Grand Rapids, Mich., increased the superheat of the steam supply by 23 degrees, saving $1,520 in the annual coal bill. Savings incidental to less frequent cleaning of three main turbines realized through the use of the clean steam totaled to an additional $756 per year.

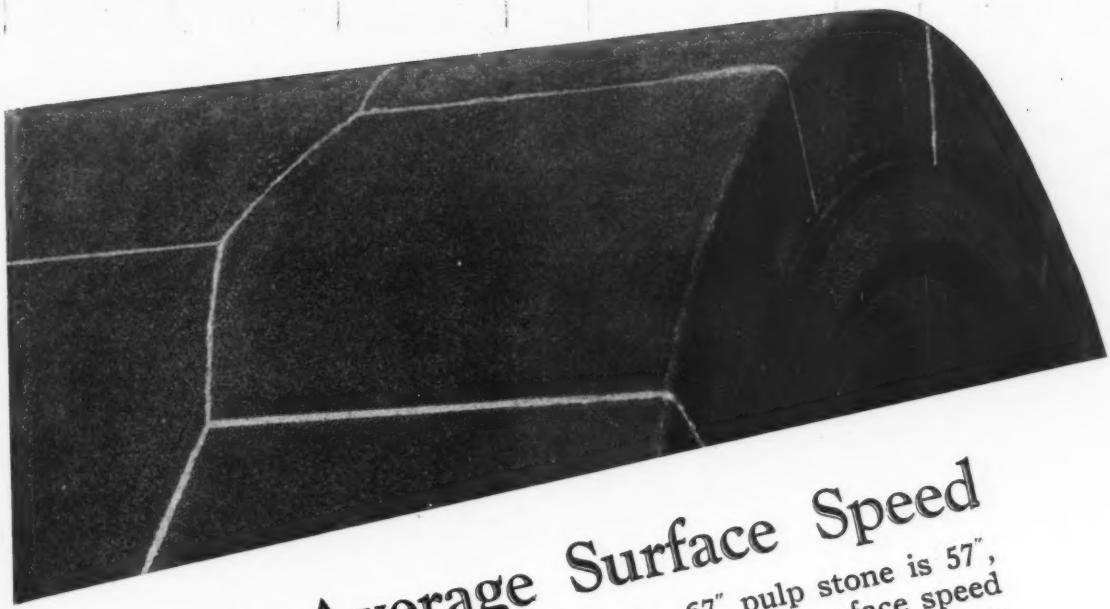
By eliminating the slugs which were formerly carried over from the boilers into the pipe line at the Phillip Carey Manufacturing Company, Lockland, Ohio, through the installation of one of these steam purifying systems, pipe line repairs and maintenance were cut down about $2,500 per year. This one saving sufficed to repay the entire cost of the steam purifier installation in two years. In addition, other lowered operating costs of considerable magnitude have provided large annual dividends upon the investment.

Systems of Effective Steam Purification

The best known of the steam purifiers which are responsible for such substantial reductions in the cost of virtually all operations entailing the use of steam, from the boiler itself to the last unit functioning on steam and back again to the boiler with the resulting conservation in fuel consumption, consists of rectangularly shaped open troughs set on end in supporting trays to form a maize of baffles. Through the centre of the supporting tray, or trays, runs a peculiarly shaped steam chamber, partially open at the top and terminating in a discharge connection to the steam nozzle of the boiler. Below this steam chamber, is a drainage chamber which discharges to the steam trap serving the purifier. The supporting tray, or trays, is covered except for entrance ports extending along its outer edges and is suspended within the steam drum in proximity to the upper boiler shell.

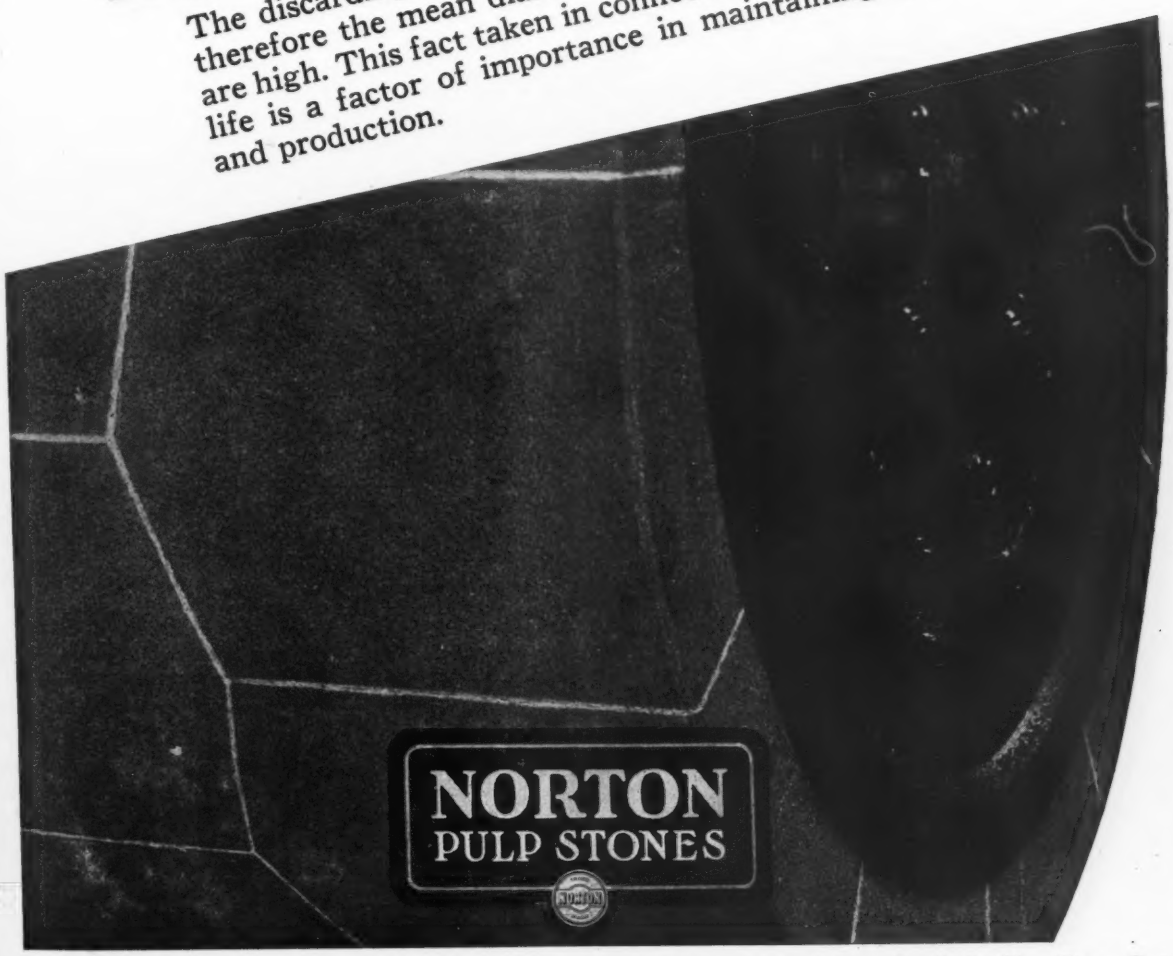
The wet steam thrown off from the boiler water contents passes into the purifier trays through these ports and finds its way through the maize of baffles. The steam in following this path is thoroughly scrubbed, the entertained water and impurities precipitated and run into the drainage chamber, while the purified steam passes into the steam chamber and through it to the steam nozzle, thoroughly cleansed and dried.

In another system of steam purification, a type of diffusing steam purifier is substituted for the scrubber type with its maze



High Average Surface Speed

The discarding diameter of the 67" pulp stone is 57", therefore the mean diameter and mean surface speed are high. This fact taken in connection with the longer life is a factor of importance in maintaining quality and production.



NORTON COMPANY, WORCESTER, MASS., Norton Company of Canada, Ltd., Hamilton, Ont.

of vertical baffles, which is also set inside the steam drum in proximity to the upper boiler shell. The diffuser steam purifier proper consists of a peculiarly shaped chamber, which in cross-section is kidney shaped, with distinctive baffle plates extending lengthwise of the chamber. The steam admission is through a central channel-like port, the entrance to which is rounded to eliminate steam eddies and pressure losses.

The steam in the boiler flows down to the bottom of this channel at high velocity, where it impinges on a horizontal deflecting plate. This plate causes the steam to flow to right and left into the separating spaces of the purifier. The dirt, impurities and moisture carried in suspension, being heavier than the steam, are not only thrown both ways along the deflecting plate but are largely extracted from the steam and pass over the edges of the deflecting plate into a lower receiver. The steam passes into an expanding channel, or diffuser, section where it loses whatever remaining water, dirt or impurities it may contain, such precipitate flowing out along the lower plate and dropping down into the discharge receiver.

The cleansed steam, as a dry gas, passes through the diffuser sections into the upper parts of the purifier. The diffusing sections, designed as expanding nozzles, cause a reduction in the steam velocity, so there is no tendency for the steam to pick-up or to carry with it any of the heavier particles of moisture and impurities. The purified steam passes to the steam nozzle through a connecting section of horizontal pipe.

The same type of diffuser steam purifier is also made into an independent unit which is located outside of the boiler shell, handling the steam between the steam nozzle of the boiler and its passage into the superheater or main steam header. A purifier of this type can be installed in live steam lines at any point to rid the steam of moisture and impurities, functioning as an effective separator.

Standard steam separators of somewhat special construction are also employed as steam purifiers, being installed between the steam nozzle and superheater, with highly efficient results. This is a form of steam purification system which has apparently proved satisfactory in the very exacting services encountered in steel mill operations. It will deliver steam having a moisture content of less than 0.5 per cent. at 300 per cent. of boiler ratings and at lower ratings the steam quality is correspondingly improved.

The importance of ridding steam of all possible condensate and of employing purified steam freed of all possible moisture and impurities have been discussed in this manner for two reasons. First the devices which make the attainment of such highly desirable practices possible represent the equipment of the power plant which invariably yields handsome returns on investments its purchase entails, and, secondly, because they constitute very important agents and instruments in any truly efficient forced vapor circulating system, such as those entailed in economical paper drying. This latter is a subject which will be taken up in detail in a subsequent issue.

Papermakers Brotherhood Appoints New Secretary

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., November 19, 1927.—Arthur Huggins, of Holyoke, Mass., has been appointed secretary of the International Brotherhood of Papermakers and will arrive in this city about December 15 which is two weeks before he assumes office. In his new capacity Mr. Huggins will also become editor of the Journal published monthly by the union. The retiring secretary, Matthew J. Burns, has already advised his successor to come to Albany by the middle of December in order that he can become better acquainted with his new duties through being associated with him in the duties for a few weeks. The executive board of the Brotherhood will meet in this city during the first week in January. Arrangements are now under way for installation of the newly elected officers in the recent campaign.

New York Trade Jottings

The Harris and Paul Paper Company has leased a floor at 59 Bank street, New York..

* * *

R. S. Kellogg, secretary of the News Print Service Bureau, is expected to return to headquarters this week end after a lengthy visit to the Far West.

* * *

At the Canadian Club last Monday an excellent attendance of members of the New York Division of the Salesmen's Association of the Paper Industry foregathered to participate in the regular weekly luncheon and meeting of the organization.

* * *

The operation of the Mead Pulp and Paper Company in New York is now being carried on by the Mead Sales Company, Inc., at 366 Madison avenue. The latter organization has taken over all of the assets and obligations of Mead, Patton & Co., which has ceased operations.

* * *

Fred J. Rooney, president of the American Pulp and Paper Mill Superintendents Association, and Walter A. Gleason, safety director of the Hammermill Paper Company, represented the American Paper and Pulp Association at the Eleventh New York Industrial Safety Congress and Exposition held in Buffalo, November 28 to December 1.

* * *

C. M. Baker, engineer of the American Paper and Pulp Association, who has established temporary headquarters in Madison, Wis., after having spent a week in the Association's offices in New York City, started his work on waste utilization and stream improvement for the industry with the meeting of the Association's Waste Utilization and Stream Improvement Committee in Chicago on November 18. Mr. Baker has prepared a short questionnaire which he will send to the paper mills of the United States in order to secure basic information regarding the work which has already been done along these lines and to thus determine the fields which are in most urgent need of his service. The week of November 28 Mr. Baker spent in Michigan in conference with state officials and paper mill executives.

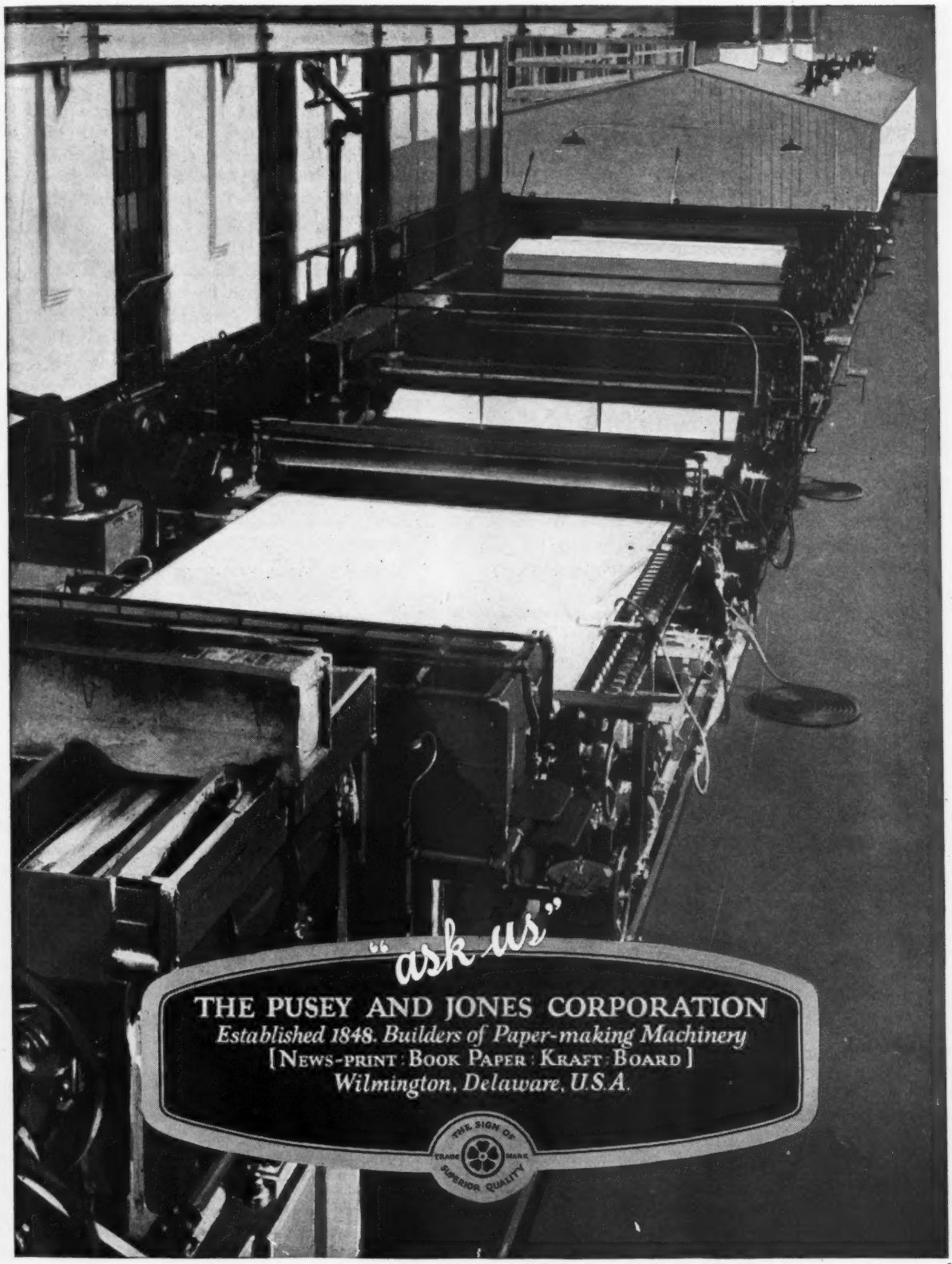
* * *

The W. B. Connor Company, Inc., of New York, makers and distributors of Ace Steam Traps, (non-return type), Ace Air Filters and Dubus Pumps for Viscous Liquids, has acquired from the Stebbins Engineering and Manufacturing Company all rights, patents and interests in the Shortt Pumping Trap. The company announces that it is now prepared to furnish this trap in a variety of capacities for pumping high temperature fluids, such as oil, condensates, gasoline, acids, etc., and for draining condensers, dry kilns, blast coils, vacuum pans, water heaters, receivers, paper drying machines and similar equipment, and for feeding boilers. Requests for information and any other matter relative to the Shortt Trap should be addressed to the W. B. Connor Company, Inc., 369 Lexington avenue, New York.

Busy on Flood Construction Work

BOSTON, Mass., December 7, 1927.—The Morton C. Tuttle Company, 862 Park Square Building, will start immediately on emergency flood construction work for the Vermont Hydro-Electric Company at Glen, Vt.; Carvers Falls, Vt.; Mendon, Vt.; and for the Twin State Gas & Electric Company at Bennington, Vt., and Hoosick Falls, N. Y.

They will also start immediately construction work on a two story Club House, 70x150 feet, for the Dennison Manufacturing Company, at Framingham, Mass.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PAPER TRADE JOURNAL
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MR. MacNAUGHTON LEAVES

Mr. William G. MacNaughton, who for the past six years has been secretary of the Technical Association of the Pulp and Paper Industry, goes this week to his new position as engineer of the News Print Service Bureau. It is no exaggeration to say that he will be greatly missed by the Technical Association as he has constantly manifested in his difficult position all those qualifications that go to make an ideal trade association secretary.

The PAPER TRADE JOURNAL especially regrets to see him go because during his years as editor of the Section of the Technical Association of the Pulp and Paper Industry, regularly printed each week in this journal, he has built up a department which has uniformly been of decided interest and which has, we have reason to know, grown to be appreciated by the pulp and paper industry generally. The publishers and the staff of this paper, therefore, feel a personal loss not only for the reason just mentioned but because during their long years of association with Mr. MacNaughton he has been always a courteous gentleman, and a sympathetic colleague.

We are glad, however, that a broader opportunity for the exercise of his experience and talents has been presented to him in the practical side of the pulp and paper making business and we wish him the best of success in his new work in which we know he will more than make good.

The Technical Association has, we believe, chosen a worthy successor to Mr. MacNaughton in Mr. Ronald G. Macdonald. A graduate of one of our foremost technical schools, the Massachusetts Institute of Technology, in the course of Chemical Engineering, an employee of a number of representative paper mills and a member of the staff of one of the leading technical journals, *Chemical and Metallurgical Engineering*, he is obviously well fitted by training and experience, not only to succeed Mr. MacNaughton as secretary of the Technical Association, but to continue the Technical Section of the PAPER TRADE JOURNAL on the high plane on which it has been conducted during the past half dozen years.

WASTE ELIMINATION

Luxuries of other nations are accepted as everyday conveniences by the American people, thanks to the gifts of nature, and to application, skill, and thrift displayed in the use of them, according to Edwin W. Ely, Acting Chief of the Division of Simplified Practice of the U. S. Department of Commerce.

Mr. Ely said: "Our advantages, admittedly, are worth having, worth preserving and passing on to our children. Considering the chances for securing this end, we look proudly at our savings bank deposits, which are nearly double those of Europe; at our insurance with a total greater than all the rest of the world combined, and at the fact that we are spending more on education than any other nation.

"Yet it makes one uneasy to learn, from the income tax returns, that the net profit on business is small, and that there are many business failures. Moreover, the cost of living is not growing less. One of the chief reasons for this disquieting condition is waste. Waste arises from many sources, not from any individual's wilful action, but from the lack of proper coordination within an industry. The remedy does not lie within the power of one man, nor in legislative action. Yet wastes which are preventable have been estimated to exceed ten billion dollars annually, a sum which is more than half of the tentative valuation of our railroads, more than half of our savings bank deposits."

One cause of this preventable waste has been attributed to our desire to make or have something "just a little different," according to Mr. Ely, who continued: "Let us consider how the burden over-diversification rests upon everyone in the country. The manufacturer pays in big stocks of raw materials and finished products; in excessive production and selling costs, and in limited output. The distributor pays in large inventories, which include many slow-moving items; needlessly large storage space; high handling charges, and other items. The consumer, if a workman, frequently pays in the handicaps of seasonal occupation. And if not himself a laborer or artisan, he shares with them the excessive charges passed down from producer to distributor.

"If the slow-moving or needless varieties of commodities could be weeded out, the 'live' items, produced in greater quantity at less expense, with steady employment, would be kept moving at a rate which would insure profits. In such event, the seldom called-for articles would be made as 'specials,' each bearing alone its own costs, instead of feeding, like so many parasites, upon the gains made by the faster-moving items, as is now the common practice.

"By utilizing the procedure of the Division of Simplified Practice, such a weeding-out process is being carried on by many industrial groups. We call it 'Simplified Practice.' The Division cooperates with all elements of an industry—producers, distributors, and consumers—to help them determine the demand, and to decide what they may practically eliminate in the interests of all three elements. This action has already been taken by 77 industries which have found annual economies totaling many millions of dollars, and have improved quality and service, without sacrificing profits, individual genius, or inventive ability."

BRIDGING INDUSTRIAL GAPS

Methods devised to bridge the gaps in the relations between men and management in industry created by mass production are the subject of a report issued by the Department of Manufacture of the Chamber of Commerce of the United States on Employee Representation or Works Councils.

The growth of this method of bringing together the executive officer of a corporation and the men who man the machines has been particularly striking since the war. It is evidence, the Department of Manufacture states, of the fundamental truth that in all matters pertaining to production the interests of management and of the worker are parallel.

"Mass production today and tomorrow," the report continues, "makes it more difficult for the officers in industry to maintain the man-to-man relations with the workers that prevailed in the small industries in the past. They are separated from each other by numerous foremen, sub-foremen, supervisors with various titles and powers—what appears to the workers as a veritable network of authority which they do not understand, but which has been occasioned by more complicated modern business structure.

"Today the mutual interest of management and of employee in the success of their industry is becoming better recognized. The thoughtless and uninformed believe that dividends are inherently marshalled against wages. They overlook the ability of united and cooperative effort between management and employee to effect practices and economies which lead directly to better wages and dividends."

Longview Fibre Plant in Operation

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., December 1, 1927.—Although there is still considerable finishing up on details of construction work, the Longview Fibre Company's plant at Longview, Wash., is now operating 24 hours a day six days a week. The crew is reduced to 300 men where formerly more than 500 were working. The present crew will be retained permanently on regular time in operation and production. R. S. Wertheimer is resident manager. M. A. Wertheimer is chairman of the board of directors. H. L. Wollenberg of San Francisco is president of the company. D. C. Everest, connected with the Marathon Paper Mills of Wisconsin, is vice-president of the Longview Fibre Company.

As previously reported, this plant is a $3,000,000 project. It is expected to produce 120 tons of pulp and the same amount of finished product daily. The mill will use Duglas fir wood waste from the Long-Bell Lumber Company's mill, the principal source of raw material for the Longview Fibre Company. About 250 cords of wood will be used daily.

William Dodge who was construction engineer in charge of the building of the plant will be chief engineer. Dewey Rigg is electrical engineer; L. C. Peabody is the office manager; Joe McDonald is superintendent of the paper mill and Herman Gevers is superintendent of the pulp mill.

President Wollenberg announced recently that a paper machine with a production of 30 tons daily will probably be added to the plant after the first of the year to be in operation next spring.

Hurlbut Paper Mfg. Co. Division Sold

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., December 5, 1927.—The sale of the Hurlbut Paper Manufacturing Company Division of South Lee to a group of mill men headed by Paul C. Zulike of New York City who is president of the new organization was consummated Saturday at a meeting with President Sidney L. Willson of the American Writing Paper Company and officials of the new organization. The purchase price is not made public. Operations will begin shortly it is understood. The mill has been kept up ready for operations since it was abandoned by the company as a manufacturing plant. It is equipped with one 66 inch and one 80 inch Fourdrinier and has been used largely in the past for the manufacture of drawing paper, playing card stock and photographic papers.

Whiting & Co. Buy Lyman Mills

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., December 6, 1927.—One of the biggest real estate deals in Holyoke manufacturing history was closed last week when William F. Whiting, president of the Whiting Paper Company, bought for Whiting & Co., Inc., the corporation owing the Whiting interests, the Lyman Mills plant, a cotton manufacturing plant with an assessed valuation of $3,400,000. This assessed valuation however is not being considered as the actual value as the assessment was made as a going concern and it was bought practically as an abandoned plant, the Lyman Mills being in the process of liquidation.

Definite information as to the purposes of the entire plant is yet lacking but it was officially announced that the Whiting Company would install as soon as practical one new machine and this might be followed as matters developed by others, number not given. As the mill buildings are sufficient for the instalment of eight or more machines, it is the current belief locally, though not confirmed by the Whitings, that a portion of the plant will be leased for other uses.

Confirmation is also lacking of the reported move of the papetrie plant in New York to this city. There are about 400 hands employed there and there will be ample space for their housing in Holyoke should the removal seem advisable.

If the plans as proposed are carried out the Whiting Company will in time operate the largest paper mill plants, making exclusively the finest bond writing and ledger papers, in the world. At present they have two mills; the No. 1 mill near the Hadley Thread Company mill, operating one 90 inch and one 62 inch Fourdrinier with a capacity of 10,000 pounds in 24 hours and the No. 2 mill on Dwight street with a 24 hour capacity of 20,000 pounds having one 76 inch and one 86 inch Fourdrinier. The No. 2 mill abuts the Lyman Mills purchase on the second level canal. Both mills are situated so that they receive water from the first level and discharge into the second level canals avoiding all high water troubles, and both have a large amount of indentured power. With the Lyman Mills there also goes about 1,700 horsepower of indentured water, all but five mill powers (about 350 horsepower) being permanent power.

The purchase created a sensation in papermaking circles and much interest in future plans which as yet have not been divulged. A report that the Liggett interests or the United Drug Company were to locate part of their textile work in the Lyman Mills was denied by Mr. Liggett as a matter of which he knew nothing.

Cost and Technical Association Meets

KALAMAZOO, Mich., December 5, 1927.—The value and importance of training both from the employer's and employee's standpoint was emphasized by C. E. DeWolfe, state manager of the International Accountants Society, who spoke before the Cost and Technical Association of the Paper Industry, which met Wednesday evening at the Columbia hotel. It was an address that would apply to any line of industry and pointed out the advantages of education in one's occupation, particularly for those who hope to come up through the ranks and attain executive positions.

Fred C. Stamm, of the Bryant Paper Company, spoke on the "Theory and Practice of Lubrication," an interesting topic to those engaged in the paper industry.

Gets Judgment Against Former Official

DENVER, Col., December 1, 1927.—A default judgment for $2,396 was entered against Arthur H. Dougall, Jr., former vice president and general manager of the Continental Paper Products Company in favor of the concern by District Judge Julian H. Moore recently.

In its suit against Dougall the company charged he had converted funds of the company to his own use between December 1, 1925, and December 31, 1926.

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HERE'S a seeming paradox—a belt built of heavy, hard-woven duck, able to handle the heaviest loads—yet so flexible that minimum slippage is assured, even on small pulleys!

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AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Conducted by R. G. MACDONALD, Secretary

Switchboard Layout for 500 Ton Paper Mill*

By S. E. M. Henderson

In designing a switchboard for any kind of a large installation, there are many factors to be taken into consideration, some of these being of a general nature and others purely local in character. A very lengthy discussion would be required to cover even the factors of a general nature and I, therefore, propose to touch on merely a few important ones.

To illustrate these points, let us assume a 500 ton paper mill with four machines and a power site suitable for supplying the entire demands of the mill, about forty miles distant. Applied capacity of electrical equipment would be approximately:

12—2.800 hp. Grinder motors	33,000 hp.
—Motors 75 hp. and over	12,400 hp.
—Motors under 75 hp.	4,000 hp.
—Electric steam generators	75,000 kw.
—Lighting and miscellaneous	?

Allowing for the usual load factor, transformer losses and line losses, this would mean generating about 130,000 KVA under normal conditions and a power factor quite close to unity. In the power plant, assume eight 18,750 KVA 90 per cent power factor generators. As the load power factor will be close to unity, the water-wheels and shafts should be good for 18,750 kw. load to allow of obtaining the maximum amount of power should more than one unit happen to be out of commission.

The diagram (Fig. 1) shows two suitable schemes of connections for such a power plant, exclusive of station service circuits and equipment. A neutral ground bus is provided to obtain the maximum degree of protection from the generator relays, only one generator of a group being connected to it at any one time. If desired, the neutral switches could be made double throw and be connected so that it is impossible to ground two generator neutrals at the same time. A low tension main bus is of no great benefit unless a low tension local service is required but means must be provided for paralleling the generators in pairs at least, so as to allow for using large capacity transformers with the consequent reduction in transformer and switching costs. High tension transformer neutrals should be grounded as this improves relay operation and other conditions.

High Tension Connections

The chief difference between the two schemes shown lies in the high tension connections. Such high tension troubles as occur are likely to be on the transmission lines rather than on the buses or transformers. Hence a double bus with two sets of line breakers and a single set of transformer breakers is a logical combination to use for a paper mill load where continuous service at maximum capacity is very important.

Lightning arresters are shown on the outgoing lines according to the usual practice and should certainly be used on all high tension systems subject to any material amount of lightning. As they are intended primarily for the protection of the transformers, a modification of the scheme shown may be found desirable should the physical arrangement of the station be such that the arresters would be a considerable distance away from the transformers. Lightning arrester protection should be supplemented by suitable ground wires on the transmission lines and on outdoor stations.

Relay protection for the power house would consist of:

Neutral Bus	—Ground relay unless the neutral is solidly grounded.
Generators	—Instantaneous differential.
Transformers	—Time limit differential.
Lines	—Time limit overload or current balance.

In selecting oil circuit breakers it is necessary to consider the interrupting capacity which is ordinarily determined by the 0.20 sec. short circuit current, the mechanical strength and the short time heating characteristics. These features are tabulated below:

	0.00 sec.	0.20 sec.
6,600 volt Shorts	91,000 amp.	46,400 amp.
110,000 volt Shorts	4,520 amp.	2,340 amp.
Breakers	**1-sec. rating**	**5-sec. rating**	**Interr. Cap.**
2,000 amp. H206	100,000 amp.	100,000 amp.	52,300 amp.
4,000 amp. H206	100,000 amp.	100,000 amp.	52,300 amp.
400 amp. K39A	40,000 amp.	20,000 amp.	5,300 amp.

It will be noted that the breakers selected will satisfactorily meet the conditions involved for both diagrams. However, the scheme using short group buses for pairs of generators instead of a continuous 6,600 volt bus, would result in over 30 per cent reduction in the 6,600 volt short circuit currents. This means much lighter duty on the oil circuit breakers and also on bus supports, disconnecting switches and other 6,600 volt apparatus and hence represents the preferable low tension scheme.

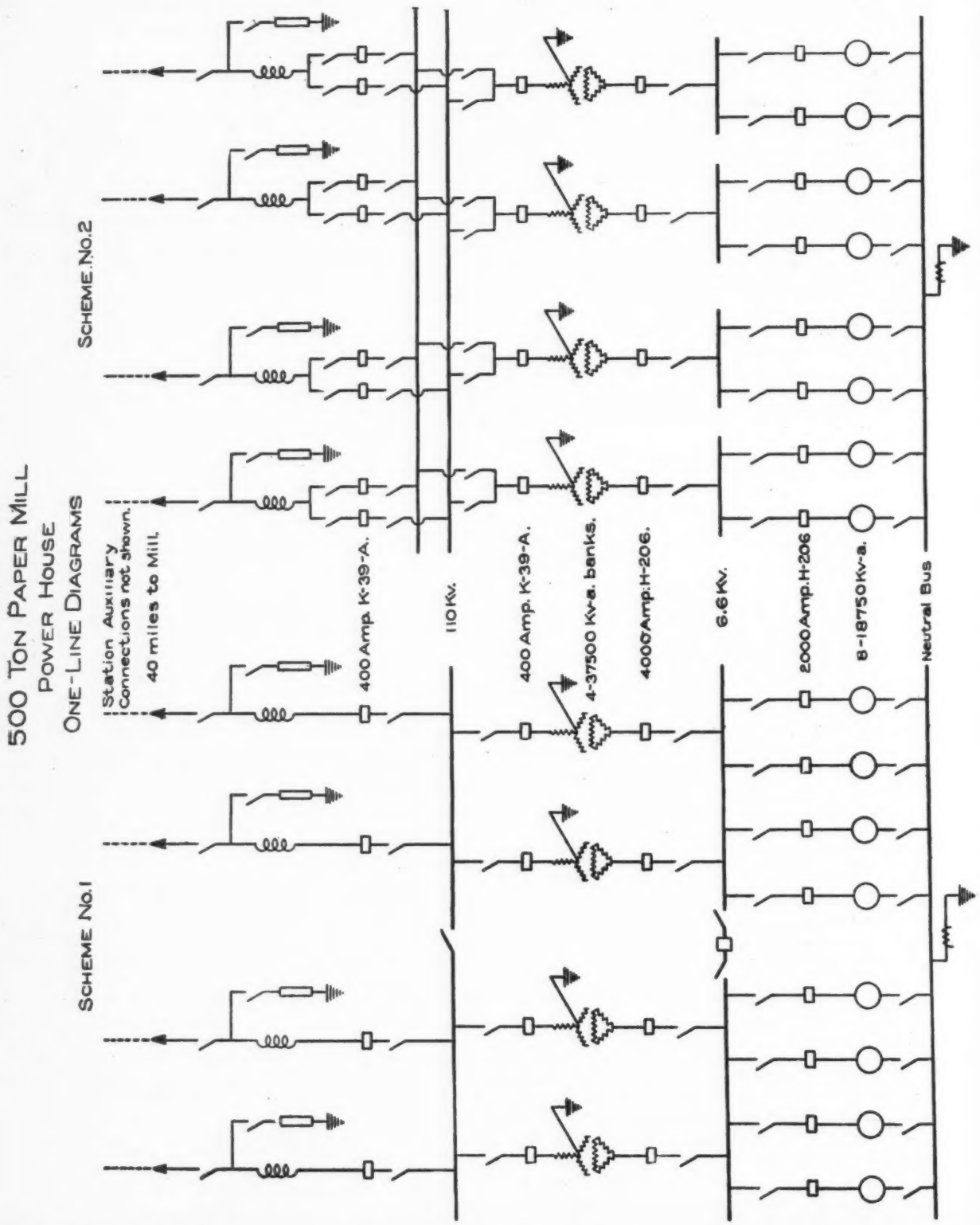
In the mill, there will naturally be a large number of motors many of which are small in terms of full load current as compared with the full load current and short circuit current of the complete system. There will be a considerable number of feeder circuits with control and measuring devices and a still larger number of motor circuits with control devices and possibly measuring devices. Where the circuit capacity is small in comparison with the system capacity, it is necessary to consider not only the interrupting capacity of circuit breaking devices but also the short time heating capacity of nearly all the devices and their mechanical strength in relation to the electro-magnetic stresses. One or both of these two features must be taken into account in connection with:

Electrical joints
Buses and bus supports
Size of wiring
Disconnecting switches
Circuit breakers
Contactors
Current transformers
Other series devices

* Paper delivered at meeting of Pulp and Paper Specialists, Canadian General Electric Company, Toronto, Ont., Oct. 13, 14, 1927.

Short time heating and electro-magnetic stresses are both proportional to the square of the current and hence require very careful consideration on small capacity circuits. Even though the short circuit currents are not sufficient to "blow up" any devices or melt the circuit wiring, they may injure the insulation sufficiently to cause a serious reduction in the life of the apparatus.

The substation diagram (Fig. 2) has therefore been arranged in such a way as to limit the short circuit currents to moderate



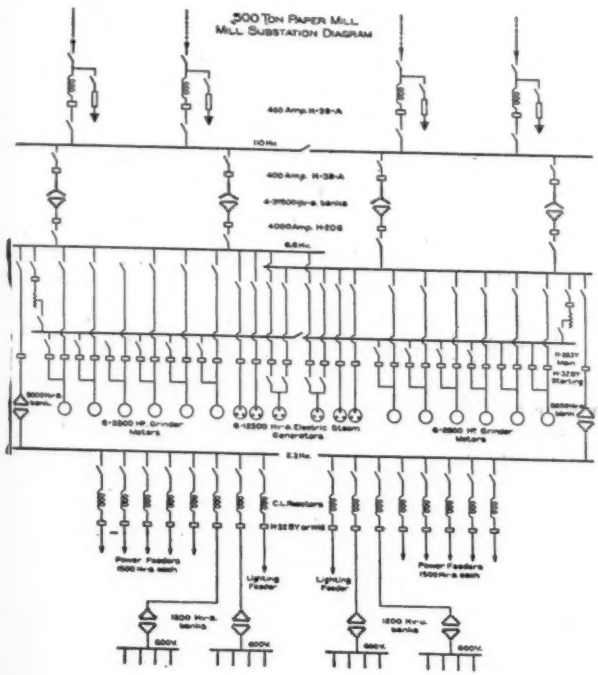
values without introducing poor voltage regulation and without sacrificing flexibility and load factor.

High tension connections would be the same as at the power house though only one of the schemes is actually shown. Note that the system is paralleled up to the main step-down transformers in the mill. 110,000 volt short circuits at the mill would be only slightly smaller than at the power house.

Starting on the 6,600 volt side, the mill system is sectionalized into two equal parts as can readily be done in a case like this. The consequent reduction in 6,600 volt short circuit values is about 16 per cent and would be still greater in a larger mill having three sections for six paper machines or four sections for eight machines. Th sectionalizing has no material effect on 2,300 and 600 volt short circuit values.

Grinder motors are wound for 6,600 volts as is quite practicable in units of this size. The cost is greater than for 2,300 volt motors but considerable transformer capacity is saved and 2,300 volt short circuit values are reduced. Electric steam generators in this size or larger would naturally be designed for 6,600 volts.

Less than 15 per cent of the power used has to be transformed to 2,300 volts or less so that short circuit values are already limited to a material degree. Current limiting reactors are used in all 2,300 volt main feeders, making a further reduction in the ratio of over five to one. 550 volt motors are supplied with power by 2,300 volt feeders with local banks of transformers, making a very



radical reduction in short circuit currents as compared with the use of a single large bank.

Relay protection at the mill would consist of:

Lines	Reverse power.
6,600 volt transformers	Time limit differential.
Electric steam generators	Time limit overload, low voltage.
Grinder motors	Time limit overload, low voltage.
2,300-v. transformers	Time limit overload.
2,300-v. feeders	Time limit overload.

The following table of short circuit currents will show the benefit obtained from some of the features mentioned above:

	Amp. in 0.00 sec.	Amp. in 0.20 sec.
6,600-v. bus paralleled	57,400	30,800
6,600-v. bus sectionalized	47,500	25,800
2,300-v. without reactors *	57,300	31,700
2,300-v. with reactors *	6,125	6,125
600-v. without reactors *	29,300	29,300
600-v. with reactors *	14,600	14,600

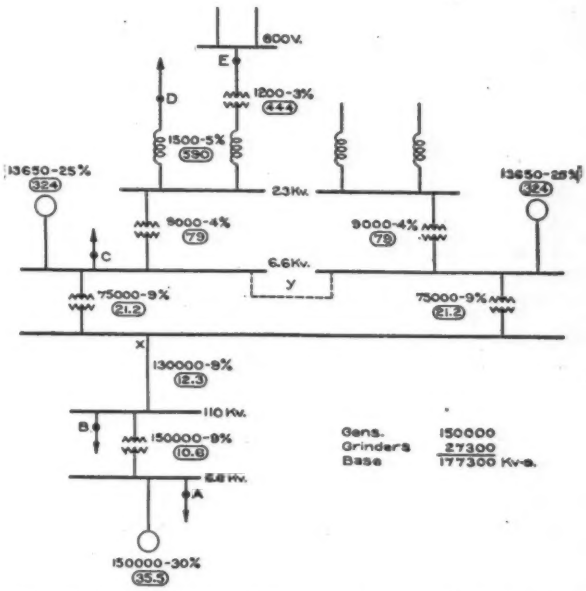
* 6,600 volt bus sectionalized.

To line up with these conditions, breakers as listed below are required:

Breakers		Amp. ratings 1-second	5-seconds	Interrupting
400 amp. K39-A	110-kv.	40,000	20,000	5,300
4,000 amp. H206	6,600-v.	100,000	100,000	52,300
800 amp. H203Y	6,600-v.	60,000	40,000	36,400
1,200 amp. H203Y	6,600-v.	80,000	60,000	36,400
1,500 amp. H203Y	6,600-v.	80,000	75,000	36,400
400 amp. K32BY	Starting	40,000	20,000	6,020
400 amp. K32BY	2,300-v.	40,000	20,000	19,000
600 amp. K32BY	2,300-v.	40,000	30,000	19,000
500 amp. K12	2,300-v. (Altern)	35,000	25,000	8,150

It will be noted that, in case of emergency, the two 6,600 volt

500 Ton Paper Mill
Short Circuit Diagram



buses may be paralleled without exceeding the ratings of the oil circuit breakers. K32BY breakers are proposed for the grinder motor starting circuits. The starting compensator reactance will reduce the short circuit values, these breakers are non-automatic, and troubles (which are a very remote possibility) would be cleared by the H203 magnetizing breakers. The 600-volt short circuit current without reactors is shown as 29,300 amperes, being calculated on the basis of system reactance only. At such low voltages, the resistance of the buses, joints, conductors, etc., has a very appreciable effect and consequently it is necessary to allow for this if correct short circuit figures are required. Ordinarily, we find that 20,000 to 25,000 amp. is about the maximum short circuit current that can be obtained on 600 volt substation circuits.

Calculation of Short Circuit Currents

As a matter of general interest only, the third diagram (Fig. 3) shows the basis used for the calculation of short circuit currents on the proposed system. All apparatus ratings shown are in KVA and the reactance at rated capacity is shown. In order to make the calculations it is necessary to change all reactance percentages to a common base which is usually taken as the total KVA capacity of the synchronous machines. These common base reactances are the figures shown in circles.

Details of the calculations are shown in the appendix but I doubt if these are of general interest and therefore will not ask you to go through them now. Short circuits at (A) are based on all eight generators being paralleled on a common bus and would be over 30 per cent less if the group bus scheme is used.

In different plants, there is so much variation in the capacity of units, number of circuits, and combinations of equipment that costs in one case are of little interest except in that case. The

following figures should therefore be considered as approximate only for this particular case. They cover the switchboards, buses and cables installed, all equipment indoor type except the lightning arresters and line disconnecting switches. Substation work terminates at the 2,300 volt oil circuit breakers.

POWER HOUSE—	
Total cost	$525,000.00
Cost per KVA (150,000)	3.50
Cost per ton (500)	1,050.00
SUBSTATION—	
Total cost	$570,000.00
Cost per KVA (150,000)	3.80
Cost per ton (500)	1,140.00

Short circuit currents as given in the paper are calculated as shown below. Note that the resistance of the various devices and circuits is neglected and hence the results are slightly high as the values are actually determined by the impedance rather than the reactance.

SHORT CIRCUIT AT (A):

Generators to (A) 35.5%

Grinder motors to (A) ..... $\frac{324}{2} + \frac{21.2}{2} + 12.3 + 10.6 = 195.5\%$

$$\frac{35.5 \times 195.5}{35.5 + 195.5} = \frac{6940.25}{231.0} = 30.04\%$$

SHORT CIRCUIT AT (B):

Generators to (B) ..... $35.5 + 10.6 = 46.1\%$

Grinder motors to (B) ..... $\frac{324}{2} + \frac{21.2}{2} + 12.3 = 184.9\%$

$$\frac{46.1 \times 184.9}{46.1 + 184.9} = \frac{8523.89}{231.0} = 36.90\%$$

SHORT CIRCUIT AT (C):

Generators to (X) ..... $35.5 + 10.6 + 12.3 = 58.4\%$

Grinder motors to (X) (right-hand group) .... $324 + 21.2 = 345.2\%$

Grinder motors to (C) (left-hand group) ..... 324 %

$$\frac{58.4 \times 345.2}{58.4 + 345.2} = \frac{20159.68}{403.6} = 49.95\% \text{ (Add 21.2)}$$

$$\frac{71.15 \times 324}{71.15 + 324} = \frac{23052.60}{395.15} = 58.34\%$$

SHORT CIRCUIT AT (D):

Without reactors $58.34 + 79.0 = 137.34$ (D)

With reactors $58.34 + 79.0 + 590.0 = 727.34$ (DR)

SHORT CIRCUIT AT (E):

Without reactors $137.34 + 444.0 = 581.34$ (E)

With reactors $137.34 + 590.0 + 444.0 = 1171.34$ (ER)

Above calculations are all on the basis of a sectionalized 6,600 volt bus in the substation, i.e., bus open at (Y). If this bus is closed at (Y), the shorts at (A) and (B) would not be altered, there would be a material reduction at (C) and a negligible change at (D) and (E). The following figures cover these changes:

SHORT CIRCUIT AT (C_1):

Generators to (C_1) ..... $35.5 + 10.6 + 12.3 + 10.6 = 69.0\%$

Grinder motors to (C_1) ..... $\frac{324}{2} = 162.0\%$

$$\frac{69 \times 162}{69 + 162} = \frac{11178}{231} = 48.39\%$$

SHORT CIRCUIT AT (D_1):

Without reactors $48.39 + 79.0 = 127.39$ (D_1)

With reactors $48.39 + 79.0 + 590 = 717.39$ (DR_1)

SHORT CIRCUIT AT (E_1):

Without reactors $127.39 + 444.0 = 571.39$ (E_1)

With reactors $127.39 + 590.0 + 444.0 = 1161.39$ (ER_1)

The following tables give the short circuit values in KVA using constants for single phase line to line shorts:

Time sec.	A—30% 6,600-v.	B—37% 110,000-v.	C—58% 6,600-v.	C_1—48% 6,600-v.	D—137% 2,300-v.	D_1—127% 2,300-v.
0.00	1,060,000	862,000	542,000	655,000	228,000	246,000
0.10	621,000	513,000	330,000	399,000	140,000	151,000
0.20	532,000	447,000	294,000	351,000	126,000	134,700
0.50	470,000	403,000	273,000	324,000	117,000	124,000
1.00	439,000	383,000	264,000	312,000	113,500	122,300
2.00	417,000	367,000	257,000	303,000	110,000	118,700
3.00	408,000	362,000	255,000	300,000	110,000	118,700

* All generators paralleled on 6,600 volt bus.

2,300-v.	D	See above table	126,000 KVA
	D_1	See above table	134,700 KVA
	DR	177300 ÷ 7.27 =	24,400 KVA
	DR_1	177300 ÷ 7.17 =	24,700 KVA
600-v.	E	177300 ÷ 5.81 =	30,500 KVA
	E_1	177300 ÷ 5.71 =	31,050 KVA
	ER	177300 ÷ 11.71 =	15,140 KVA
	ER_1	177300 ÷ 11.61 =	15,270 KVA

The Manufacture of Luminous Papers*

For some time past these papers have been quite in vogue, not only for industrial purposes such as indicating the position of electric switches, fire alarms, etc., but also for interior house-decorating purposes. At the Exhibition of Decorative Arts, held in Paris recently, there were numerous examples of this very modern method of giving distinctive decorative effects by impregnating wall papers, curtains or upholstery with various substances which make them luminous in the dark. This gives most artistic effects and met with considerable success.

Certain navigation companies have equipped their boats with sheets of luminous cardboard to indicate the position of fire extinguishing apparatus and of life belts.

There are two methods of making these papers, the impregnating or coating process being essentially the same as for the treatment of paper with other substances. Two types of pigments are used, radio-active and phosphorescent.

Use of Radio-Active Pigments

The former consists of a mixture of zinc sulphide and of mesothorium, a salt produced from thorium ores and obtained as a byproduct in the manufacture of incandescent gas mantles, and used as a radium substitute. Radium also is sometimes used, but much more seldom. The zinc sulphide absorbs the X-rays emanating from the mesothorium or the radium and emits luminous rays; so that the paper or board which has been treated with the mixture can give off light in the dark without having been previously exposed to sunlight. This process has a considerable advantage over the use of phosphorescent substances which give off light only after having been exposed to sunlight for a certain length of time. But radio-active pigments, on the other hand, are less permanent, and must be renewed quite frequently. This evidently cannot be due to the breaking down of the mesothorium or radium, which require many centuries to lose one half of their activity, but to the molecular dissociation of the zinc sulphide through the intense action of the X-rays. As previously stated, the luminosity cannot be regenerated by exposing the material to the action of sunlight.

Phosphorescent Pigments

Phosphorescent pigments contain a mixture of calcium and strontium sulphides and calcium tungstate. They should be considered as light accumulators, which are active only insofar as they have been exposed to the action of sunlight. If they are not periodically exposed to daylight, they rapidly lose their activity. Their chief advantage over the radio-active pigments lies in the fact that they are easily regenerated.

In making luminous papers, it is therefore important to know the use to which they are to be put: phosphorescent pigments should be used for papers which are to be exposed to natural light during the daytime, while radio-active pigments should be taken for papers which are intended for places which always remain dark, such as tunnels, cellars, underground mines, etc.

* Translated from Le Moniteur de la Papeterie Belge 7, 179-180, March, 1927, by A. Papineau-Couture.

Continuous Trough Drainer for Paper Machine Drying Cylinders

By A. D. Harrison

The continuous trough drainer is designed to obtain a uniform surface temperature throughout the entire length of the drier and to maintain the minimum possible thickness of water film on the inside of the drier.

Machines already in operation and designed for siphon draining can easily be modified to take the continuous trough drainer. The present tube (about 4 inches outside diameter) which is screwed into the steam supply chamber is replaced by a long tube passing right through the drier and supported at the other end by a bracket carried on the bearing, a gland being provided at this end. The tube forms the top member of the bridge-like structure inside the drier, the bottom member being the water-catching scroll. The two members are braced together to form a rigid structure which will not allow any deflection.

The water catcher is formed in the shape of a scroll designed so that the condensed water will be delivered to and held in the trough. The siphon pipe dipping into the trough has ample clearance, between the open end and the bottom of the trough, to give the full area at entrance in order to reduce the resistance to the flow of water to a negligible quantity.

In order to obtain an even distribution of steam throughout the length of the drier the internal steam pipe is drilled at equal intervals with small holes forming nozzles which direct the steam onto the inner surface of the drier uniformly along its length.

It is claimed that a paper machine fitted with the continuous trough drainer will give absolutely even drying across the sheet and permit the speed of the machine to be increased. The reason for the greater efficiency of the drying surface is that the water film inside the cylinder is reduced to a minimum and of even thickness throughout the length of the cylinder.

The distinctive feature of the design is that the velocity of the water film revolving with the drier is utilized to deflect its course and deliver the condensed water to the trough.

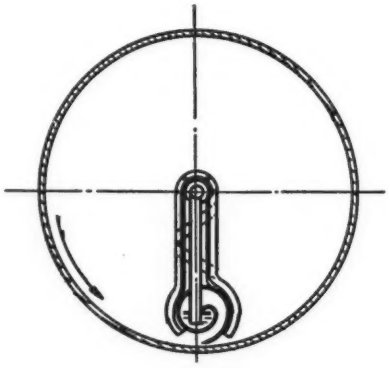
The higher the speed the more effective will be its operation, whereas with existing drainers the difficulties increase with the speed.

For a 60 inch drier at a speed of 550 ft. a minute the velocity of the water would raise its level from the bottom to the top of the drier. The speed, therefore, at which this drainer commences to function is comparatively low. The rigid construction permits the clearance between the water catcher and the inside of the drier to be reduced to a fraction of that permissible with the siphon type, thus greatly facilitating the transfer of heat from the steam to the surface of the drier.

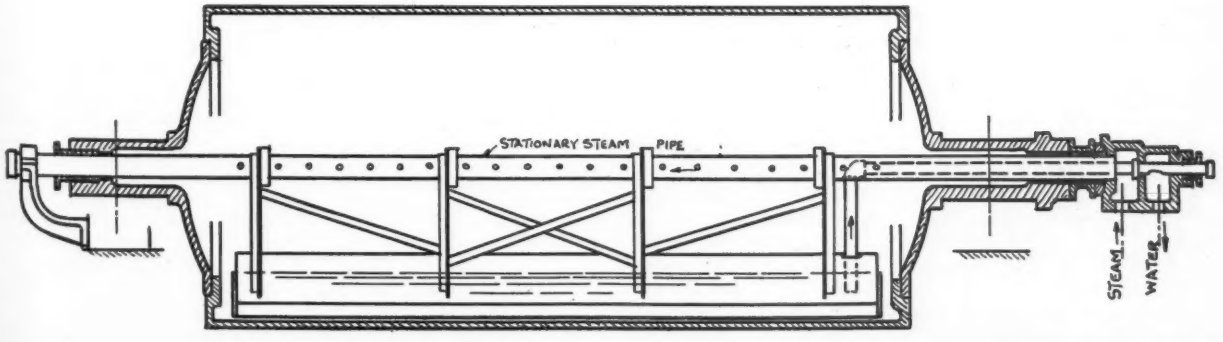
Also, the thickness of the water film will, if anything, be reduced at the higher speeds owing to the vertex action of the catcher, whereas with the present types the thickness increases rapidly with the speed.

The present siphon drainer is mechanically weak. It can only be supported from the end like a fishing rod. Any vibration or expansion will cause the open end of the siphon pipe to vary its position with respect to the inside of the drier. If the end is too close to the drier the area available for the passage of the water is restricted, thus causing the level of the water to build up in the drier. If the clearance is excessive the drier becomes inefficient from the same cause.

In the event of the end of the siphon pipe touching the inside of the dryer, the pipe is either bent out of shape or broken off. In the former case there is nothing to indicate what has happened and in the latter case the pipe will rattle round inside the drier. Either contingency puts the drier practically out of action and requires the manhole cover of the drier to be removed before the damage can be repaired.



THE CONTINUOUS TROUGH DRAINER
FOR PAPER MACHINE DRYER CYLINDERS
HARRISON'S PATENT.



Further, the open end of the siphon pipe is necessarily near to one end of the cylinder and only takes out the water from a strip of the cylinder, about two inches wide. The water from the far end of the drier has to travel practically the whole length of the drier before it can be removed. Therefore, the drier will have a greater depth of water at the far end. The temperature along the drier surface will thus vary, causing uneven drying and consequently uneven stretching of the paper which tends towards paper breakages and reduces the maximum speed obtainable from the machine.

The continuous trough drainer is a thoroughly substantial and practical piece of apparatus designed to overcome the well-recognized faults and shortcomings inherent in the existing methods of removing the water from paper machine driers.

It can be installed in existing machines within a very short period—a few driers each week end.

There is no interference with existing pipe work.

When completed there are no further maintenance charges—no uncertainty of operation, and the cost of installation is small compared with the importance of the service it is designed to perform.

Standard Method of Measuring Bulk of Paper

Preliminary Report

In cooperation with the Technical Association of the Pulp and Paper Industry in its program of standardization of paper testing methods, an investigation has been begun by the Bureau of Standards on the measurement of bulk. The purpose of this preliminary report is primarily to enlist the interest of manufacturers, publishers and others concerned with the subject of bulk, and to obtain suggestions for the guidance of the bureau in the further work to be done toward the development of a standard method of measuring the bulk of paper.

The term *bulk* has a varied usage, particularly abroad. It may mean the thickness of a number of sheets, the thickness of a single sheet, the ratio of the total volume to the actual fiber volume, or the ratio of the thickness to the weight. In this country bulk is usually undersood to mean the thickness of a pack of paper containing a certain number of sheets or pages. There is, however, no standard procedure for making the measurement.

Perkins Pressure Bulker

Apparently the only commercial instrument specifically designed for the measurement of bulk is the Perkins pressure bulker. This instrument is designed to measure the bulk of a certain number of sheets of paper under a definite pressure. It has a pressure range of 0 to 50 pounds per square inch and can be used to determine the bulk of a pack of sheets four inches in thickness. It has, however, a shortcoming in that appreciable error results from friction in the pressure indicating mechanism, particularly in the lower part of the pressure range.

Preliminary Work

In this preliminary work the Perkins pressure bulker was used. An investigation was carried out to determine what effect certain prime variables in its operation have on the indicated bulk of the paper.

In this investigation four kinds of paper were considered, namely: sized and supercalendered printing, machine finished printing, machine finished rag printing, and news print.

Results of the Investigation

1. Behavior of Different Kinds of Paper.—Above 30 pounds per square inch the coefficient of compressibility K—the change in bulk of an inch pack per unit change of pressure—is small and practically constant for a given paper. The value of K for each of the four papers is given in the following table:

Paper	K
S. & S. C. Printing	0.00050
M. F. Printing	0.00055
M. F. Rag Printing	0.00088
News Print	0.00170

Somewhat greater differences in compressibility were observed at the lower pressures.

2. Effect of the Size of the Pressure Surfaces.—The bulk of machine-finished printing paper was measured using pressure surfaces of 1, 3, and 5 square inches, and it was found that the indicated bulk was independent of the size of the pressure surfaces within these limits.

3. Effect of the Size of the Sheets.—The bulk of the rag printing paper was determined on sheets 2¼, 4, and 8 inches square. The maximum observed difference in bulk attributed to the size of the sheets was less than 0.25 per cent.

4. Effect of the Number of Sheets.—Tests made on packs of machine finished paper of 10, 20, 50, 100, 150, 250, and 500 sheets showed that the greatest accuracy is obtained when bulk is determined on packs containing 250 to 500 sheets.

5. Effect of Pressure.—The effect of pressure is, of course, to decrease the bulk, the amount of compression depending upon the kind of paper. Of the four kinds of paper studied, the compression between the pressure of 5 and 40 pounds per square inch was from 3 to 10 per cent. The difference in bulk at high and low pressures was found to be small for the supercalendered paper, but for the most compressible paper it was considerable. From these results it is evident that the relative bulking values of different kinds of paper are different for high and low pressures. Although the error in measuring bulk is less when high pressures are used, the practical significance of bulk measurement may require a low pressure to be used, since the bound volume as used is under slight pressure.

Repeated applications of pressure lower but little the indicated bulk at a given pressure. After twenty applications of a pressure of 40 pounds per square inch for 15 second periods, the indicated bulk of the paper was 98.5 per cent of the original bulk at the corresponding pressure.

Tentative Standard Procedure

A tentative standard procedure for measuring the bulk of paper is given below.

Number of sheets:	Not less than 250.
Size of sheets:	Not smaller than 4 inches square.
Pressure:	Bulk may perhaps be best measured by first applying for a certain interval of time a relatively high pressure such as is used during the binding process, releasing the pressure, and then measuring the bulk under a light pressure, this simulating as closely as practicable the conditions of usage. Pressures of 40 pounds and 5 pounds, respectively, are suggested. In each case the specified pressure shall be approached from zero and not exceeded.
Readings:	Readings should be taken immediately after the pressure is applied. Not more than one reading shall be taken at the same place on the sheets.
Expression of results:	It is suggested that the bulk of paper be expressed as the thickness in inches of 1,000 sheets at a definite pressure.

Expressions of Opinion Requested

It is desired to have expressions of opinion from publishers, paper manufacturers, and others interested in the measurement of bulk, upon this preliminary report. It is especially desired to have opinions upon the following points:

1. The pressure to be used in measuring bulk and the reasons therefor, with statements as to the amount and length of time pressure is applied to the paper in bookbindings and other related fabrications.

2. The degree of accuracy required in the measurement for practical purposes.

3. An enumeration of the kinds of paper to be considered.

4. The significance of bulk as against that of ordinary thickness measurements, if any.

5. An opinion on the suggested basis for expression of results.

Elimination of Deckle Strap on Fourdrinier Machines

Amongst the several inventions of George S. Witham, Jr., is a method and apparatus for doing away with the deckle straps on fourdrinier machines. In its broadest aspects the invention, for which Witham was granted United States patent No. 1,629,607 (May 24, 1927), contemplates permitting the stock to flow unrestrictedly over the edges of the wire and reconveying the overflow to the slice box.

Figure 1 is a longitudinal section of the wet end of a fourdrinier illustrating, on a small scale, the general features of the invention.

Figure 2 is a fragmentary section of Figure 4 in the plane 2-2.

Figure 3 is a side elevation or section on the line 3-3 of the fragmentary portion shown in Figure 2.

Figure 4 is an enlarged fragmentary plan view of a portion of the machine showing the application of the device.

In the drawings, (1) is the breast roll, (2) the table rolls which carry the wire (3), (4) the slice, (5) the slice box, (6) the head box, and (7) the screens, all of which are of the usual construction.

Referring more particularly to Figure 1, (8) represents the wire pit which acts as a save-all and which is drained through piping (9) to the mixing pump (10). The pump (10) is also connected to the consistency regulator through piping (11), and serves to mix the stock drained from the wire pit (8) with stock from the regulator and force the mixture to the screens (7) through piping (12) and valve (13); (14) represents the tank into which the white water from the suction boxes and couch rolls is drained, and from which it is drawn by pump (15) and reconveyed to the beaters and a save-all.

Stock Collected in Closed Wire Pit

As shown in the drawings, the stock which flows over the edges of the wire is collected in a closed wire pit, and used as a diluent for the stock coming from the consistency regulator, the flow from the regulator being adjusted so that the mixture issuing from the pump (10) is of the proper consistency for delivery to the screens.

Referring particularly to Figures 2, 3 and 4, which represent the various elements of the wet end of the present type of fourdrinier, it will be apparent that the stock stream flowing over the edge of wire (3) at any considerable velocity may be carried beyond the edge of the wire pit (8) and flow on to the floor (18). Moreover, pulp and water flowing over the edges of the wire may be thrown into the bearings (19) of the table rolls. This could be prevented by modifying the construction of the machine to increase the width of the wire pit and the length of the table roll shafts; but the same result can be obtained more simply and cheaply by interposing suitable plates for deflecting the overflow stock.

Supported on the rail (21) by the elements (22) is the upper deflecting plate (23), which extends vertically somewhat above the plane of the upper reach of the wire (3) and somewhat below the shafts (20) of the table rolls (2), to provide a protection for the bearings (19). This plate is at a suitable distance from the edge of the wire, and this distance can be adjusted by means of the binding nuts (26) coacting with studs (27) on the rail. This deflecting plate, and the next lower deflecting plate (28), should extend from a point near the slice and in a direction about parallel to the edge of the wire until they reach a point along the wire where the pulp fibers begin to felt or intermesh and cease to be carried over the edges of the wire. In many cases, ten feet is sufficient.

Preventing Pulp from Deflection

To prevent pulp from being deflected from the upper plate to the lower reach of wire (3), where it would soon cause ridges to form and result in breaks, a lower deflecting plate (28) is provided. The upper edge of this plate is somewhat within or behind a vertical plane passing through the outer edge of the upper reach of the wire, and the lower edge is outside or in front of this plane, passing through the outer edge of the lower reach of the wire. Where necessary, a third, and still lower, plate (29) may be provided to ensure that all the stock will be deflected to the wire pit.

Where the side flow of stock just after it strikes the wire (3) is wholly unrestricted, the resultant sheet is somewhat thinner at the edges and for some distance inwards than at the center, which

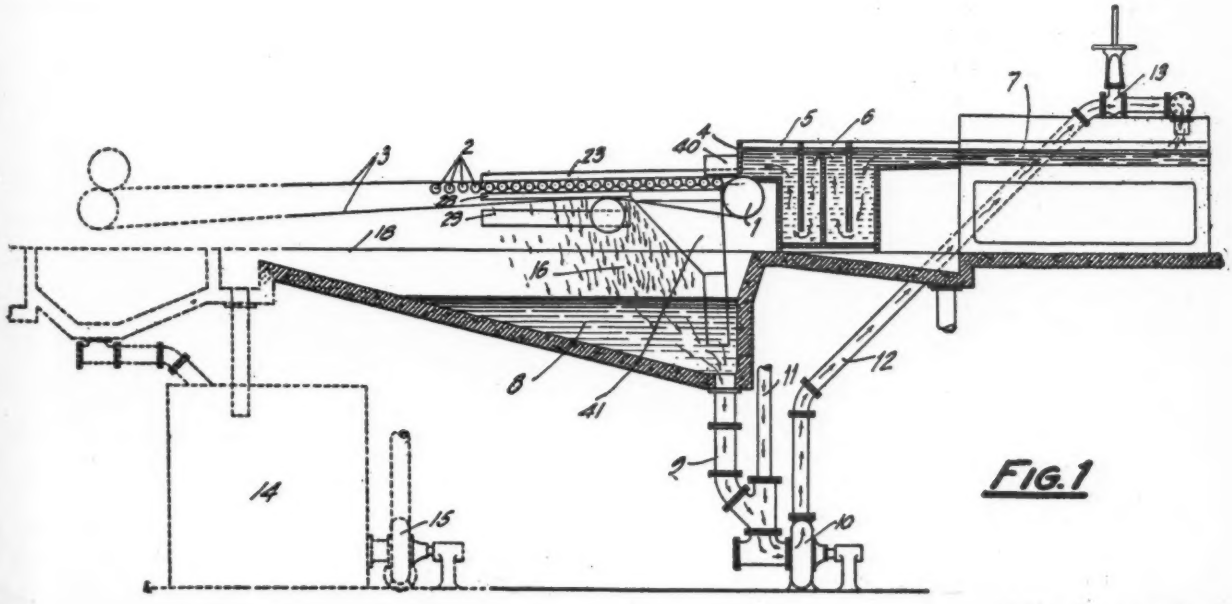


FIG. 1

necessitates trimming off this portion. Two reduce the width of this thinner portion adjustable wing plates (40) are provided, which extend a short distance (about 10 to 12 inches) from the point where the stock first strikes the wire, and the bottom edge of which is just above and out of contact with the wire. These wing plates do not form a tight seal with the wire, but nevertheless they serve to momentarily restrain the side flow of the stock. They tend to cause the formation of small pools in the issuing stock on each side of the wire, from which the water is quickly drained and from which the fibers are deposited near the edges of the wire in a layer of approximately the same thickness as at the center of the wire. These plates are hinged at (30), and adjusting means comprising binding nuts (31) and slotted elements (32) are provided whereby the angle of splay of the wing plates and the splay of the issuing stock stream may be varied, as shown at (29').

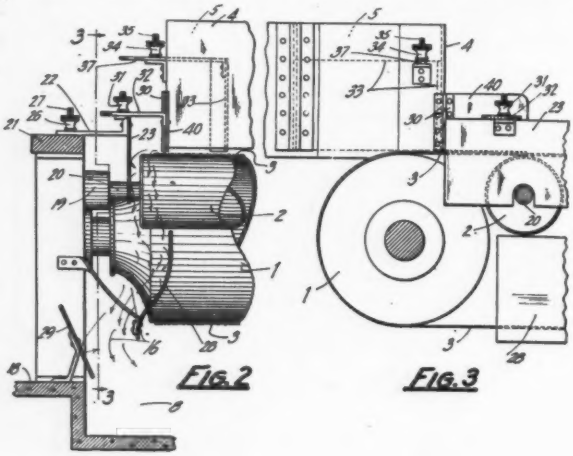


FIG. 2 FIG. 3

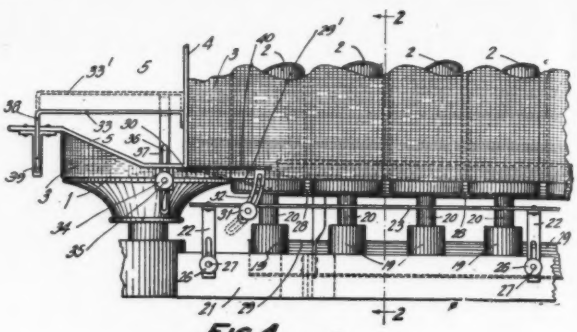


FIG. 4

The adjustable slice plate (33) is provided inside the slice box (5) and may be moved towards or from the center of the slice, as shown at (33') to vary the slice opening according to the width of sheet required. These adjustable slice plates are secured in position by the binding nuts (34), coacting with studs (35), passing through the slotted openings (36) in elements (37). The plates (33) are also provided with an angular portion (38) adapted to slide within a recess (39) in the side of the slice box, so that the flow from the slice is substantially limited to the opening included between the plate (33) at the opposite sides of the machine.

Referring to Figure 1, it will be seen that there is a save-all (41), which serves to protect the lower reach of the wire near the breast roll (1). Where the portion of this save-all which extends beyond the wire and communicates with the wire pit forms a protection for the lower reach of the wire, the plate (29) may stop.—A. P.-C.

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Pulp and Paper Industry

By Clarence J. West, Chairman

Cellulose and Liquor

Chrystalline Substances Isolated from Lignin. George J. Ritter. Ind. Eng. Chem. 19, 624 (May 1927). The description and photomicrographs of crystalline substances isolated by Kurschner (Z. angew. Chem. 40, 224 (1927)) from wood lignin prepared by fungus and enzyme action, show them to be very similar to, if not identical with, crystals extracted at the U. S. Forest Products Laboratory, Madison, Wis., from chemically prepared wood lignin. It is believed that a determination of the chemical composition and structure of these products, which is at present under way, will be an important step toward solving the composition of lignin. As lignin isolated by treatment with 72% sulphuric acid is generally considered to be chemically different from lignin in the original wood, the similarity with the product obtained by Kurschner conforms the previously published findings of the Forest Products Laboratory that ligneous material resulting from decay differs in composition from that in the original sound wood. A.P.-C.

Lignin II. Formaldehyde as a cleavage product of lignin. Karl Freudenberg and Max Harder. *Ber.* 60B, 581-5 (1927). Hydrochloric acid lignin in pentosan determinations according to Tollens gives a precipitate with phloroglucinol regularly amounting to 4-6%, calculated as pentosan; the precipitate is red-brown, however, instead of black green as with pentoses and is also partially soluble in alcohol; formaldehyde has been found responsible for this, as can be shown by using an excess of barbituric acid instead of phloroglucinol as the condensing agent. The amount of formaldehyde split off is about 0.6-0.8% of the lignin and with phloroglucinol gives an amount of precipitate corresponding to about 5% of the pentosan. That any formaldehyde is found at all indicates anew that there are not very many free phenol groups in lignin for otherwise they would almost completely remove the formaldehyde at the moment of its formation by nucleus condensation. It is suggested that the formaldehyde in lignin is present in the same way as in piperonal; alkali fusion of lignin, like that of piperonylic acid, gives protocatechuic acid and in the transformation of lignin the authors believe they have perceived the odor of heliotrope along with that of vanillin. The lignin, having been previously treated with cold concentrated acid, could not contain the formaldehyde in aliphatic acetal-like combination. If this belief is correct, part of the formaldehyde split off at once condenses with the pyrocatechol nuclei set free and in the procedure followed hitherto only a part of the CH_2O_2 groups is detected; the actual formaldehyde content is estimated to be about 2%. In the future formaldehyde must be taken into account in pentosan determinations on wood; in pine wood about 1.5% pentosans must be deducted from the values hitherto generally accepted. C.J.W.

Autooxidation of lignin. Hugo Ditz and Rudolf May. J. prakt. Chem. 115, 201-215 (1927). A commercial sample of lignin contained 0.005% of manganese. A method is given for the preparation of manganese free lignin, although it contained 0.89 per cent ash. The addition of 0.0008 gram manganese (as the chloride) to 2 grams of this lignin caused an increase of 14%

in the oxygen absorption in the first 24 hours. In a second experiment in which 2 grams of lignin and 25 cc. sodium hydroxide were used, 0.008 gram manganese caused an increase of 44% in the oxygen absorption, while 0.0008 gram was less effective. C.J.W.

Raw Materials

Breeding of Rapid Growing Trees for Pulpwood. Ralph H. McKee, A. B. Stout, and E. J. Schreiner. Paper Ind. 9, 55-59 (April 1927); Paper Mill 50, No. 17, 20, 28 (April 23, 1927); pulp and paper 25, 629-635 (May 12, 1927). An outline of the work being carried out at present jointly by the Oxford Paper Co. and the New York Botanical Gardens on hybridization with a view to developing a rapid-growing tree suitable as a pulpwood. The investigation is being carried out with various species of poplar. A.P.-C.

Tests Carried Out at the French School of Paper Making on the Paper Making Qualities of Ailanthus Wood (Ailanthus Glandulosa Desfontaines). L. Vidal and M. Aribert. Papier 30, 183-186 (Feb. 1927.) Wood about 15 years old contained 9% moisture, 49.3% cellulose (via Cross and Bevan), 0.74% ash, 4% water extract, 1% alcohol extract and 0.8% ether extract. Cooking 8 hrs. under a pressure of 3 kilos, with 25% of caustic soda at a concentration of 12° Baumé yielded 50% of a reddish, hard pulp, which was difficult to defiber and could only be bleached to a poor cream shade with 30% of bleaching powder. Increasing the proportion of caustic soda to 30% and the concentration to 15° Baumé gave 46% of much softer, reddish pulp, which bleached to a satisfactory white with 23% of bleaching powder. The fiber length is 0.5 to 1 mm., average 0.8 mm.; the diameter is 0.020 to 0.030 mm., average 0.025 mm.; the felting power is low. The micrographic characteristics are described. The pulp is of poor quality, and could only be used as a filler. A.P.-C.

Modern Preparation of Straw. E. Grumbach. Papier 30, 187-191 (Feb. 1927). Description of straw cutting and cleaning equipment constructed by Ernst Grumbach und Sohn A. G., Freiberg, Saxony, which is guaranteed to recover from 1 to 1.5% of grain on the weight of the straw. A.P.-C.

Waste Mail Pouches as Paper Making Material. Merle B. Shaw and George W. Bicking. Paper Trade J. 84, No. 19, 45-46 (May 12, 1927). Semicommercial paper making test on condemned mail pouches, declared unserviceable for postal use and macerated to permit of sale to the highest competitive bidder showed that a good clean halfstuff can be obtained by the usual commercial paper making processes. The paper produced was stronger than that made from sulphite wood stock and compared favorably with many of the high-grade bond and rag writing papers on the market. Waste mail pouches have unusual value for paper making in that the material is of one grade and free from extraneous substances commonly found in rag stock. This makes possible the production of very uniform papers. A.P.-C.

Manila Rope Waste for Paper Manufacture. Merle B. Shaw and George W. Bicking. Paper Trade J. 84, No. 18, 68-70 May 5, 1927. Laboratory tests on the refuse fiber from the manufacture of manila cordage indicate that, as to yield and quality of paper produced, manila waste does not compare favorably with old rope fiber, but is somewhat superior to sulphite wood pulp; also, that the commonly used cooking processes are satisfactory for converting the waste into paper making pulp. Semi-commercial pulping and paper making tests showed that soda ash alone was preferable to caustic soda or to a mixture of soda ash and clay as a cooking agent; and that the strength of paper made from rope waste is inferior to that made from kraft or rope stock, but considerably better than that from bleached sulphite wood pulp. The waste is impregnated with considerable oil (up to 20%) used to facilitate straightening out the fibers in the rope making; this oil causes some difficulty in the preparation of the paper making stock and is not all removed in the pulping operation. The paper making value of the waste would be increasd by extracting the oil prior to pulping. A.P.-C.

Pulping Waste Paper. O. C. Winestock. Eng. pat. 262,270. In pulping and deinking waste paper the material, mixed with water with or without a detergent, is subjected to the action of a large number of substantially equal and opposite forces produced, for example, by blades of opposite pitch on individual propellers coacting with corresponding blades on adjacent propellers on the same shaft and also on adjacent propellers on one or more companion shafts. A relatively smaller amount of liquid is used with this apparatus. A hopper is provided at one end and a discharge at the other, the operation of the apparatus being continuous and the feed there through being by gravity. A.P.-C.

Wood Pulp

Fungi in Wood Pulp. S. Samuelsen. Papir-Journales: World's Paper Trade Rev. 87, 702-711 (March 4, 1927); Paper Trade J. 84, No. 21, 45-47 (4, No. 22, 268-273 (1926) May 26, 1927). In a mill troubled with fungus infection of pulp the latter showed small green spots which changed from green to black and frequently almost covered the pulp laps; other sheets turned reddish to brown, and in time crumbled. The black color was due to Cladosporium belonging to Fungi imperfecti, while the reddish or brown spots were due to fungi of the Trichoderma family, of the group Ascomycetes. Examination of the pulpwood and of the water of the mill-head and from the barking drums showed that the unusual accumulation of fungi commenced only inside the mill. The slimy coating which quickly forms in pipes and vessels consisted mainly of fungi; but their hyphae and sporules were colorless and gave apparently no indication as to the source of the black, green and reddish-brown color. This was traced to the fact that the Cladosporium first develop a colorless stage which later turn brown and finally black; if the growth takes place entirely under water, the fungus remains colorless, the dark sporuliferous stage being reached under the influence of air. The main trouble from the Cladosporium is the discoloration, as the fungus does not appreciably attack the fiber, but lives on the small quantities of soluble carbohydrates in the pulp, which accounts for the fact that development takes place much more quickly in pipes and containers than in the finished pulp. The Trichoderma rapidly attack and destroy the fiber. On sterile woodpulp, Cladosporium does not noticeably develop in two months at O°C, and the rate of development gradually increases as the temperature rises (to 25°C., which was the highest temperature at which experiments were carried out); addition to the pulp of a sap suitable for the fungus hastens the development, but not to the enormous speed characteristic of other fungi. If the fungus at its colorless stage is transferred from the pipes and containers of the mill to the sterile wood pulp, numerous fully developed hyphae detaching black spores may be found after 3 to 4 days. The author concludes that, under the climatic conditions prevailing in Scandinavia, the trouble could be prevented by a thorough disinfecting of the mills once or twice a year, provided the weekly cleaning is as effective as possible. A.P.-C.

Mechanical Process

Wood Grinder. R. E. Read assignor to International Paper Co. U. S. pat. 1,602,211, Oct. 5, 1926. The wood inside the pockets is not in direct contact with the sides of the pockets, but is engaged with an supported by opposing pairs of endless chains of plates, which travel on and are supported by pairs of endless chains of friction rollers. The chains of plates are connected with the pressure foot in such a manner that they advance at the same linear velocity as the latter, so that the danger of the wood "arching" or jamming in the pockets owing to its engaging with the fixed walls of pockets is eliminated. The wood in all the pockets is not ground simultaneously. The pockets are divided into two series, and when all the wood in one pocket or series of pockets has been ground, the pressure feet are automatically

retracted while the feed of wood in the other series of pockets is started, thereby ensuring uniform pressure of the wood on the stone and avoiding any danger of racing or wastage of power. A.P.-C.

Wood Grinder. C. J. Sternkopf U. S. pat. 1,619,004, March 1, 1927. The stone is enclosed in a watertight casing, to which is connected a watertight magazine. The groundwood discharge outlet is at a certain height above the stone, so that the matter is completely immersed in water, which rises to a certain height in the magazine also. Means are provided for heating the wood in the magazine at a point above the stone so as to soften it before it is ground. A. P.-C.

Grinder Shaft Thread Protection. L. W. Dunphy. Pulp and Paper 25, 281-282 (March 3, 1927). In order to protect the end threads of the grinder shaft from corrosion and wear prolong the life of the grinder shaft, the use of an ordinary brass packing gland, bolted to the grinder nut by means of four tap bolts, has been found very efficient. A strip of packing is inserted around the outside surface of the threads of grinder nut and shaft, and it is tightly pressed against these threads by the gland. A. P.-C.

Alkaline Processes

Effect of Steam on the Decomposition of Limestone. E. E. Berger. IND. ENG. CHEM. 19, 594-596 (May 1927). The rate of calcination of limestone in equal currents of air, steam, and helium was determined at increasing constant temperatures from 600° to 1,000° C. The calcination rate was slightly different in each gas, but this variation is explained by the effect of the physical properties of each gas on the transfer of heat to the limestone, and not to any chemical or catalytic effect which the gasses might have on the limestone during the calcination process. It is shown that the difference in physical properties of the gas entering the lime kiln would not be changed sufficiently by the addition of a small quantity of steam to have any appreciable effect on the calcination process. The effect of steam and waste flue gas on the combustion of the fuel is summarized briefly. A. P.-C.

Lime in the Paper Industry. P. A. Paulson. Ind. Eng. Chem. 19, 564-566 (May 1927). The production of paper from rags and from wood pulp by the three methods employing lime is described, with emphasis on the part played by lime in each process. It is shown that by closer cooperation between the lime manufacturer and the paper maker both industries will be benefited and at the same time our forests can be conserved. More extensive research work of a chemical nature is urged as one method of accomplishing this. A. P.-C.

Some Variables Affecting the Behavior of Limes Used in Causticizing. J. V. Dorr and A. W. Bull. Ind. Eng. Chem. 19, 588-561 (May 1927); Pulp and Paper 25, 569-572 (May 5, 1927). Paper Trade J. 84, No. 21, 41-44 (May 26, 1927). Experimental results are given to show that the method of causticizing is of great importance in determining the physical properties of the calcium carbonate produced, and it is pointed out that this in turn will control the size of chemical equipment needed for a causticizing plant with given capacity. Within reasonable limits, an excess of lime has only a slight effect on the rate of settling of the calcium carbonate. The settling rate decreases as the agitation is continued for a longer time. Temperatures above 850° D. are of little benefit in accelerating settling. Slow addition of soda ash solution to milk of lime, instead of mixing the two together all at once, lowers rather than increases the rate of settling. When lime was causticized with caustic soda solution instead of water, the lime was considerably longer in reach a maximum temperature; and the slacked lime thus produced yielded an extremely rapid settling carbon after causticizing; as agitation is continued the settling rate decreases, as previously noted. Increasing the degree of agitation decreases the settling rate of the carbonate produced, but increases the rate of the causticizing reaction. Comparative tests made on 11 different lines showed that in general higher causticities are obtained with the slower settling carbonates, and that the very rapidly settling carbonates had a tendency to leave some fine material in suspension, whereas the very slow settling carbonates, being very bulky, carried down all the fine material, leaving a practically crystal-clear solution. The nature of the causticizing reaction is discussed, from which it is inferred that the calcium hydrate particles do not pass into solution to be reprecipitated from solution, but that the carbonate is formed at the surface of the hydrate particle and that a gradual replacement of hydrate by carbonate occurs by diffusion in the particle. A.P.-C.

An Explanation of Variations in Heat Consumption in Sulphate Cooking. Bjorn Gregertson, Papir-Jour. 14, No. 20,145-7 (1926). An increase of 1 kg/hl. in the weight of the chips can require an increase of 18.4 kg. steam (650 Cal/kg.) per ton pulp in the cooking process and 75 kg. in the recovery process for direct cooking, or 66 kg. when indirect steam is used. 1% increase in yield diminishes the heat in the black liquor by an amount equivalent to 307 kg. steam per ton pulp. The use of pine increases the heat consumption, an increase of 10% pine in respect to spruce increasing the heat lost in the black liquor by 35,000 Cal/kg. which is equivalent to 54 kg steam per ton pulp. C. E. P.

Process for Cooking Straws. I. Schneeberger, R. Schneeberger, G. Schneeberger. Fr. pat. *17,826. Mix 4 kilos of rosin, 20 liters of 30° Baumé caustic soda solution and 5 kilos of casein, heat and work into a smooth paste; add 50 kilos of soda ash, 20 kilos of powdered quicklime and 30 kilos of fuller's earth and work into a smooth paste. Cook the straw with 10% of the above paste. The fuller's earth is added to absorb coloring matter and facilitate subsequent bleaching; the soda ash and quicklime are added to give a the fuller's earth and also to neutralize organic acids formed during the cooking. A.P.-C.

Pulping Process. Stangalini, Rotelli and Battistoni. Fr. pat 618,028. The fibrous material (straw or wood) is treated with steam at a high temperature to disintegrate it and remove the medullary and non-fibrous portions, and is then chlorinated to convert it into high grade cellulose. By treatment with steam, the usual alkaline treatment of chlorine pulping processes can be dispensed with, and at the same time the finished pulp has a much higher alpha-cellulose content (84%) than pulp produced by the usual chlorination processes (73%). A. P.-C.

Cooking with Caustic Soda. Raymond Fournier. Papeterie 49, 9-13 (Jan. 10 1927). Pulp and Paper 25, 347-348 (March 17, 1927). Brief discussion of the effects of liquor concentration, cooking temperature, time of cooking, condition of the material and mechanical treatment during cooking. A. P.-C.

Pulping Process. R. A. Marr. Can. pat. 265,635, Nov. 9, 1926. Cellulosic and ligneous materials are cooked in a solution of a metal sulphate of substantially below 1% strength under a pressure higher than atmospheric until the cementitious matter in the materials is rendered readily friable without thereby reducing such material to a pulp. A. P.-C.

Apparatus for the Chlorination of Pulp. A. R. de Vains. Can. pat. 265,786, Nov. 16, 1926. A chlorination apparatus comprises a closed receptacle having an inlet and an outlet opening for the cellulosic material with means for forcing chlorine into the receptacle, means for observing and controlling the quantity of gas accumulating above the level of the pulp and in the receptacle and agitating means for facilitating the absorption of the gas by the pulp. A.P.-C.

Manufacture of Resistant Cellulose. G. A. Richter and M. O. Schur, assignors to Brown Co. Can. pat. 264,452, Sept. 21, 1926. Wood pulp is subjected to a relatively weak oxidizing action without materially bleaching it, and is then digested at atmospheric pressure with an alkaline reagent to dissolve the less resistent sellulose, the resinous or ligneous compounds and residues made soluble in alkaline solutions by the first step, the product then being washed and bleached. A.P.-C.

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The Development and Future Trend of Cost Accounting*

By Henry R. Boston, Cost Accountant of the Stevens & Thompson Paper Co.,

Cost accounting, as we know it, is a comparatively new science, having had its greatest advance in perhaps the last twelve years. It has often been said that the Federal Income Tax law did more to force business to adopt proper accounting methods, than any other single influence, and along with this came the great strides in the development of cost accounting; general accounting methods were better known, although not necessarily widely practiced, before cost accounting really obtained its start.

The attempts of manufacturers at cost finding, of course, dates back more than twelve years. One accountant of my acquaintance has told me, that thirty years or so ago, he had what was then called a "cost account" in operation in a paper mill. Judged by present standards, the methods then in use were inaccurate, and at best only general averages of cost could be arrived at.

Old Cost Finding Methods

The old cost finding methods had no tie-in with the general accounts with the inevitable result that discrepancies between the profits as calculated via the cost account, and those shown by a closing of the general books almost always occurred. Furthermore, it was very seldom if ever, that a satisfactory explanation of the discrepancies could be given by either the cost accountant or the general accountant.

The first attempts to tie-in the cost accounting system with the general books were probably made by accounting for raw materials and labor. With these two items controlled, the next step was to control finished stock. This necessitated some attempts at burden distribution in order to determine the cost of goods made and sold.

The tie-in between the general books and the raw materials and direct labor charges as allocated to production, presented no serious difficulties other than those of the organization of stores and payroll departments, with the necessary records. There were no vital questions regarding the theory of the distribution of direct materials and labor to manufactured product. It was mostly a matter of organization and routine procedure.

It was and perhaps still is, a much debated question as to what is the best method of allocating burden charges to the cost of the manufactured product. To solve this problem, several theories had to be developed and tried out under various conditions, and in several industries in order to arrive at the best solution.

Great Impetus from Pioneer Work

The science of cost accounting no doubt received a great impetus from the work of such pioneers in the field of industrial management as Taylor, Gantt, Emerson and a few others. The work that these men did started in the machine tool industry and it is interesting to note that the first treatises on cost accounting dealt with the subject as applied to that industry.

It is also interesting to note that the first big strike in cost accounting came after the first big strides made in "shop management," as it was then called. Whether cost accounting would have developed independently without the impetus given by the development of shop management methods, is doubtful and I am personally inclined to the view that it would not have done so. The new shop management methods created certain conditions which it was necessary to translate into dollars and cents values, and the science of cost accounting was developed to accomplish this end.

To return to the problem of cost finding and the three elements of cost, namely, materials, labor and burden, we have seen that the cost accounting procedure for the first two mentioned elements did not require anything but the organization of stores and payroll departments, and the designing of proper forms and records. The accounting for, and distribution and allocation of burden charges to the manufactured product presented difficulties not as easily overcome as was the case with material and labor charges.

There seemed to be a general agreement among the leading cost accountants as to what items constituted burden charges. The only element of burden which caused (and still does cause) serious differences of opinion, was the element of interest. However, this forms no part of the present discussion.

Burden Charges

The next general point of agreement was that burden charges should be allocated against separate production centers, or manufacturing processes. Having established this principle, the next step was to analyze the various types of burden charges and allocate them to the production centers. This is not always an easy matter, for we encounter here the question of how the charges to service centers or indirect production centers such as the general office or repair shop, or shipping department, should be disposed of.

However, as a general rule slightly debatable questions such as these are left to the best judgment of the cost accountant, for solution, and fairly accurate results are in most cases obtained.

Following an allocation of burden items to productive centers or processes, the next important step was to further sub-divide or allocate the items so that they could be expressed in terms of a

* Address delivered before Cost Association of the Paper Industry, at Convention held in Detroit, Mich., October 21, 1927.

burden cost for the manufactured product. Various methods were proposed and argued pro and con.

A brief statement and discussion of these methods will be of interest here, if for no other reason than to remind us that only a short time ago we seriously argued and fought over these Nursery Rhymes of cost accounting.

1—Burden Distribution on basis of materials used; either on a quantity, weight or dollar basis.

2—Burden Distribution on a basis of direct labor costs.

This is not quite as pernicious in its misleading influence as the first one mentioned, so we will stop long enough to take a few cracks at the vulnerable points. This method presupposes that a 40 cent an hour workman will incur in six hours the same amount of burden that a 60 cent an hour man will incur in four hours. This is interesting—if true, yet it is surprising how many plants which profess to have good cost accounting systems adhere to this idea. One of my neighbors who rules the destiny of a very large plant near here and who certainly knows better—follows this method. The reasoning in this case is that having tried this and other methods, they all work out to about the same result—and this method is easier. Perhaps this is true in total, but a more detailed analysis would probably show the fallacy of this, when applied to individual cases.

3—Distribution of burden on man-hour basis.

This method does not have as many objections as method No. 2, in that it recognizes that burden as considered at present, is mostly a function of time.

However, this method does not recognize that different pieces of equipment, or processes do not all incur the same amount of burden per man-hour, and so this method can only be applied to very special cases. This brings us to the most modern method, i.e.,

4—Distribution of burden on a machine or process hour basis.

By analyzing to the finest degree all of the burden items chargeable against a production center, it is possible with a fair degree of accuracy to further allocate these charges to individual machines or processes within that center. These charges can then be translated into a rate per normal machine or process hour and then applied against the cost of product manufactured within a specified time.

The accounting procedure for this is simply to debit the work in process or goods manufactured account, and credit the production center with so much earned burden. At first this method of accounting brought forth a storm of disapproval, because the old fashioned bookkeepers insisted that this left an unaccounted for balance in the production center account. They have been used to doing something with every item of expense and this radical step left them bewildered like a cow in a strange barn yard.

It was suggested that this unabsorbed or overabsorbed balance be redistributed to the product which had passed through, by means of a supplementary rate. This method was seriously advocated back in the dark ages perhaps 12 years ago, but its practical application proved so cumbersome that it was soon discarded.

Machine Hour Rate Method

It is not contended that the machine or process hour rate method of burden application is the ideal method, far from it, and some of the objections to it will be discussed later. However, it does recognize the presently accepted theory that burden is to a large degree a function of time and is passed on to the cost of product manufactured, also on the basis of the time required to manufacture that product.

Now what are some of the objections to this method? In the first place, it presupposes that all of the various elements of burden can be properly allocated to various machines, sometimes of different types and sizes, in each production center. This, of course, is not possible, but this objection may be answered by pointing out that it is only a few of the elements of burden which can not be so allocated. On these the best judgment of the cost accountant must be used.

Another and more serious objection to this machine hour rate method is that it presupposes an accurate knowledge of what the normal operating hours per month or per year of each machine or process should be.

As you all know, many items of burden are fixed, and independent, to a large degree, of operating hours. That is to say, that certain items of burden go on whether the machines operate or not, while the remaining ones fluctuate with production.

Normal Operating Hours

This question of normal operating hours (and incidentally normal burden) is a very much discussed question at the present time. At present we will have to content ourselves with just scratching the surface of the question.

It seems safe to state that the question of normal operating hours must be settled by each industry for itself. The matters of the type of product manufactured, its average economic life, the relation between the productive power of the industry and the consuming power of the public, must all be taken into consideration in determining the answer to this question. In addition to this general solution of the problem, each individual in the industry has to consider its own productive capacity, financial strength, relation to consuming markets, and many other things. A discussion of the details of this subject would provide material enough for a treatise on present day economies of awe inspiring size. It seems to me that the answer to the question of normal operating hours is more one for the economist to wrestle with than the cost accountant.

We have thus arrived in our discussion at a point in the development of cost accounting where some more or less satisfactory solution has been arrived at for the disposal of the elements of cost, i.e., material, labor and burden.

At the start, all materials, labor and expense were applied to the product manufactured, regardless of how quickly or slowly similar products were manufactured at different times. This practice, called the job cost system, as you know, still persists in a great many places. As a matter of historical knowledge, it may be interesting to learn that a thousand articles manufactured last month cost more than a thousand similar articles cost two months before—but the question is still open as to how much they should cost under normal manufacturing conditions.

The accounting methods under the job order cost system are such that the inventories of goods manufactured show values varying with each lot made. The fallacy of building up an inventory and assigning varying values to lots of the same materials, is obvious. An attempt to correct this is sometimes made by averaging the cost of several lots and carrying the inventory of manufactured goods at this figure. In effect, however, this amounts to nothing less than marking up the low cost lots and marking down the high cost ones, so that an inventory profit is taken in one case and an inventory loss in the other. True, the profits and losses equalize each other, but the fact remains that figures have been juggled and no information has been brought out to show what the lots really should cost.

Standard Cost System

Cost accountants and industrial engineers were quick to see the fallacy in this method, and the development of the so-called standard cost system is the result; we are today in a period of transition from the job order cost system to the standard cost system, and I am glad to say, converts to the newer method are constantly being made.

At this point a cautionary remark regarding the applicability of the standard cost system should be made. There are many industries in which this plan could not be used as advantageously as the job order method. For example, in my discussion before this chapter last winter, I pointed out that a job printing plant was a place where the job order cost methods could be used to best advantage. Generally speaking, in an industry where certain jobs or operations are repeated at intervals, the standard cost plan is the best.

With the growth of the new idea of standards, new accounting

methods and terms had to be designed. The theory behind any standard cost plan is to measure the actual performance of each production center from purchasing department to shipping department, against some previously established standard and express the results in money values. Variations of course, occur all along the line and these are absorbed as a profit or loss (mostly the latter) as they occur. Variations out of the ordinary are inventoried and standards are changed periodically to conform to changing conditions.

This, briefly, is the stage of development to which we have progressed and before taking a glimpse of the future of cost accounting, let us consider what has been happening to production methods in the factory.

I will quote from a recent issue of the Monthly Labor Review of the United States Department of Labor, the following:

"There is taking place in the United States today a new industrial revolution which may far exceed in economic importance that older industrial revolution ushered in by the series of mechanical inventions which occurred in England in the last quarter of the eighteenth century, and which eventually transformed English industrial, political, and social life."

This sentence was a rather spectacular introduction to the article on "The Index of Productivity of Labor in the Steel, Automobile, Shoe and Paper Industries." It has naturally evoked a great deal of comment and there has been some doubt expressed as to whether or not it was too sweeping in its scope. But I believe that it *is* a fair statement. We seem to be in the midst of an industrial revolution which encompasses not only one country as the old industrial revolution in England, but the entire occidental world, if not the whole world. It will undoubtedly be a more humane revolution than the old one, in that it unites immense industrial efficiency to an enormous betterment of the condition of workers and the general status of society.

Productivity of Labor

The most recent studies which have been made of the productivity of labor give reliable statistical support to the conviction that general well being in our country is increasing with amazing rapidity. It fully supports the statement of the National Industrial Conference Board that "So pronounced has been the change in the quantitative relationship between labor and production that, in the light of an analysis of this phase of our recent industrial history—it heralds far reaching betterment, not only in our economic affairs, but affords a foundation for wide social and cultural advance as well."

One of the first statistical warnings that something revolutionary was happening was the realization that production in various lines of American industry was rapidly increasing without a corresponding increase in employment.

The volume of manufacturing output from 1921 to 1925 increased about 62 per cent, whereas employment increased only about 15 per cent. A closer study of several industries made by the Department of Labor show, for example, that in the automobile industry the output per man in 1923 was three times as great as in 1914. In the iron and steel industry, the increase in productivity per employee has been about 50 per cent in the same time. The paper and pulp industry in ten years has increased its per employee output about 34 per cent, and even in the highly mechanized shoe industry it has been increased 17 per cent.

Expressed in other terms, the increase in productivity per wage earner has been 33 per cent; increase in primary power utilized per wage earner 16 per cent; increase in wages paid per unit of production 2 per cent; decrease in cost of management per unit of production 12 per cent; all of this has been accomplished with a 7 per cent reduction in the actual working time per wage earner.

The developments which have brought about this increase in productivity seem to be the following:

1—Intensive application of mechanical appliances in manufacturing, not only in the specific processes, but in the general equipment as well.

2—Increased efficiency of management.

3—Increased sense of responsibility on the part of employees.

The intense mechanization of industry we are all familiar with, and that requires no further comment.

The increased sense of responsibility of employees is well illustrated in the excellent work being done by employees and foremen's associations.

Increased Efficiency of Management

Evidence of the increased efficiency of management is found in the statement of the National Industrial Conference Board that the cost of management has decreased 12 per cent per unit of production. During the period mentioned, there has been a continued effort to install and get the most value out of management systems, methods and devices. During this same period the problems of waste in industry and the reduction of overhead expenses have been vigorously attacked.

L. P. Alford in the September, 1926, issue of *Manufacturing Industries,* presented a table showing what has been done in 100 cases to either increase production or lower costs. It is a table well worth the study of every one interested in the elimination of waste in industry.

In these 100 cases all of the generally accepted management mechanisms were used repeatedly. Many cases showed an attack on financial operation through the installation of budgetary control, financial management and the like.

Indeed, so marked has been our increase in productive capacity that the problems of the immediate future will be those of consumption and distribution, rather than production.

Already great strides have been made along these lines. The analyses of markets are receiving the concentrated study of sales engineers, advertising specialists and others, with the result that new uses for old products are constantly being discovered and new markets being created thereby. This, however, is a relatively new development brought in by our ever increasing productive capacity. It has been said that there is no limit to the consuming power of mankind, and certainly these figures seem to show that there is a great deal of truth in that statement.

Now, what are the tools which management has used to bring about these remarkable results? Let us name a few of them.

1—Time study and job analysis.
2—Piece work and bonus wage payment plans.
3—Planning and production control systems.
4—Cost accounting systems.
5—Budgetary control and better financial management through budgets.
6—Mechanization of processes, etc.
7—Scientific research, etc.

At the beginning of this paper it was brought out that time study and job analysis as well as piece-work wage payment plans preceded the development of cost accounting. Planning and production control systems and cost accounting systems were introduced and developed at about the same time, although the development of production control systems proceeded perhaps at a faster rate than cost accounting systems.

Systems of Budgetary Control

There is no question, however, but that the development of systems of budgetary control were to a large extent the result of the progress made in cost accounting. The very fact that the attempt was made to establish normal burden rates automatically suggested a method of controlling the burden and hence, the budget. This idea has, of course, been extended to control all kinds of expenditures from burden items to direct materials, labor, etc.

It seems evident from the foregoing that in most cases the work done by industrial engineers and time study men has progressed at a faster rate in our industrial development than cost accounting. Only too often the cost accounting system has lagged behind the changes made in production methods, machine layouts, etc.

This has not been due to any idleness on the part of those engaged in the study of the problem, but merely because the mechanical problems have been solved faster than the problems of cost finding.

In a great many industries the modern theory and practice of cost accounting presents a reasonably accurate picture of what is going on in that industry. A great deal of good work has been done by the Cost Associations of the various industries, who have gotten together to standardize their cost accounting practices. This is also a logical development, since each industry presents its own difficulties and they can be best solved by those engaged in it. Furthermore, uniform cost accounting procedure, we hope, will eventually eliminate unintelligent competition.

There are, however, a great many problems still to be solved, and it may be interesting to mention a few of these in passing.

No satisfactory cost methods have been devised for

A—The plating industry.
B—The manufacture of electrotypes in the printing industry.
C—The heat treatment of metals.
D—The distribution of selling and administrative expenses to the cost of product made and sold.
E—The accounting for by-products, and many others.

Besides these, there are a great many minor debatable points still waiting for solution, such as the accounting for scrap and the aforementioned problem of normal operating hours.

Material Handling Plays Large Part

Among the more recent developments is the increasing realization of the large part that material handling plays in our production scheme. The problem has again been attacked by engineers and most of the mechanical difficulties solved. The cost accountant has been left to follow along as best he can and develop normal burden rates for a new type of production center, called the transportation center. The determination of the proper basis to charge the cost of operating such a department against the product is also something to think about.

What an apparent hodge-podge it is! Industrial engineers, time study men, budget administrators, sales executives, market analysts and cost accountants all struggling toward their individual goals. The cost accountant has to step very fast indeed in order to keep up the pace set by the others.

Actually, however, the hodge-podge is more apparent than real, for after all, everyone is working for maximum efficiency and standardization.

So here we are, in the midst of the mad rush of production, increasing efficiency and standardization.

The industrial engineer has to look forward to maintaining and even increasing present-day efficiency—efficiency in the use of man-power, mechanical power, and materials.

The sales executive must plan on how to reduce selling costs; meet competition and find a market for the constantly growing output which the factory puts out.

Now what about cost accounting? What means must be employed and what methods developed, to keep pace with the plans for the future which are being made by the industrial engineer, and the sales executive?

Before we proceed any further with a discussion of this question, let us first stop and examine critically the theory upon which our most up-to-date cost systems are founded. This I take to be the standard cost theory carried out to its fullest extent.

As indicated earlier in this paper, the standard cost plan is at once a barometer and a measuring stick. In its barometric function it attempts to foretell what costs will be for a definite period in advance, and then measures the actual performance with that predetermined standard. The results are expressed in accounting terms as debit or credit balances, remaining in standard variation accounts in the cost ledger.

I firmly believe that this theory is sound and is the groundwork upon which our cost systems of the future will be built. Its reasoning is exactly the same as that of the time study man and industrial engineer—and we have seen the results of their work. In my opinion, we will not see any very radical changes or departures made from this basic theory in the next decade.

Changes in Present Methods Required

Having then established a sound basis for the future, what other changes in present methods will be necessary?

In the largest plants having many different shops or divisions, and performing many different operations, the practice which is considered the best today is to have a cost system in each shop, run by a cost man who renders periodical reports to the central office, where they are compiled.

At this point I will venture an extremely hazardous prophecy. Unless some drastic changes occur in cost accounting methods (not in its basic theory, mind you!) we will see a gradual scrapping and discontinuing of factory cost systems.

I realize fully that in this audience there are representatives of companies which rank all the way from excellent to very rotten in efficiency and system. Those companies whose ranking is excellent are in a position to see that the trend is as I have indicated. The others must eventually fall into line or fall by the wayside. This prophecy of mine is shared by other industrial engineers, and is based on the very rapid growth of shop efficiency and the progress which has been made in shop control. The most efficient organization in the country and perhaps in the world, the Ford Motor Company—has no factory cost system that functions as such.

This is not due to the fact that they cannot use a factory cost system, or that such a system would do them no good, but is due to the fact that the plant became so efficient that the existing cost systems were of no use. Obviously the next progressive step would be to design a cost system which would aid even so efficient an organization.

Now I certainly do not want to be misunderstood on this point. I have had considerable experience in the design and installation of cost accounting systems, and have watched the progress made in the science of cost accounting ever since 1916. I know that cost accounting has been an invaluable aid to industry, in pointing out leaks which have later been stopped by the shop management. It has played a great part in helping to reduce waste of all kinds, in industry, and even in efficient plants it must not be left to die an untimely death. Cost systems can be made to teach and instruct as well as to record, and as the plant passes from one stage of efficiency to the next, the cost system must be changed accordingly.

Our early cost systems were comparatively simple in design, but slow and cumbersome in their operation. The purely routine work has been enormously helped by the many mechanical calculating and recording devices which have been perfected in the last few years. The cost systems of the future will be more and more complicated in their design, but more simple in operation. The cost system constantly has a more complicated story which must be told, and the means employed to put it into print must be constantly simplified or else we will be up against the high cost of cost accounting.

The greatest danger of an excellent cost system is that it eventually commits suicide. If it is good enough, it will function itself out of business. The system will show every item of cost and expense to everyone concerned currently. It will not be necessary for the cost accountant to continually point out the leaks, they will be taken care of permanently. The statistics will have paved the way for improvements in all directions, and eventually the daily, weekly or monthly reports do not forestall much or anything. The greatest part of cost accounting will center on plant layout, new types of machinery, etc. However, it will still be necessary to see that manufacturing operations do not fall off in efficiency, but for this only a skeleton system will be necessary. The cost information is kept literally up-to-date, which is something that the average cost system of today does not do.

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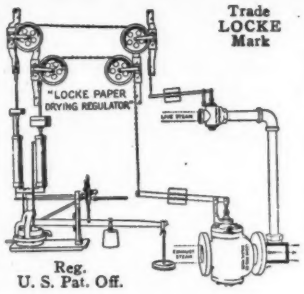

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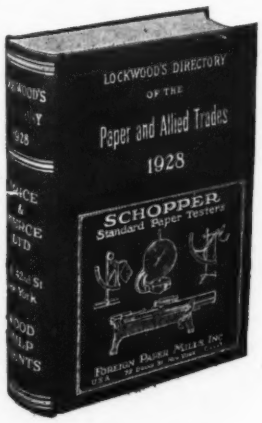

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City Addresses of Mills and Mill Supply Houses
Classified List of Paper Mill Products
Classified List of Pulp Mill Products
Coated Paper Manufacturers
Envelope Manufacturers
Glazed and Coated Paper Manufacturers
Idle Mills
Mill Officials
Pad Manufacturers
Paper Merchants
Paper Stock and Rag Dealers
Paper Bag Manufacturers
Paper Box Manufacturers
Paper, Wood Pulp and Chemical Fibre Mills of the United States, Canada, Cuba, Mexico and South America
Paper Specialties Manufacturers

LOCKWOOD TRADE JOURNAL CO., Inc.
10 EAST 39th STREET NEW YORK, U. S. A.

Demand for Paper Continues Active in Toronto

Various Holiday Specialties in Particularly Good Request—Book Paper Mills Closing Season With Better Record Than Last Year—Tissue Paper Manufacturers Report Exceptional Business—Board Plants Running To Capacity—Paper Stock Situation

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., December 5, 1927.—November proved to be a very good month in the paper line and wholesalers trust that trade will continue active up to the end of the year. Specialties are in particularly good demand and manufacturing stationers are busy on the last rush in filling Christmas orders. Book mills continue active and will close the season of 1927 with a better record generally than that of 1926. The manufacturers of tissue specialties report an exceptionally good call, due to the sale of many fancy-colored creations at this season of the year.

The demand for kraft has improved with the holiday season and prices remain unchanged. On the whole, 1927 has been a very fair one for the makers of kraft pulp and kraft paper both from a domestic and export standpoint, while mills turning out glassine, grease-proof and waxing papers are busier than they were some time ago.

Board plants are also running to capacity owing to the activity of paper box factories which have been turning out large quantities of all kinds of boxes during the past few months. Many of the box establishments are working overtime.

On the whole there is not much change in the rag and waste paper situation. The demand is strong but it is expected that there will be some dropping off in orders during the present month. Supplies are large but there has been no great accumulation of stock owing to repeated requisitions from customers in all parts of the country.

The paper trade generally faces 1928 with a good deal of optimism and there is a general feeling that, on the whole, the industry will come through 1927 better than was expected. At times, trade was spotty but frequent orders for small amounts built up a large aggregate and jobbers, from the turnover standpoint, will not have much cause for complaint. Consumers of paper, and even jobbers themselves, are not stocking up at the present time as, with the approach of the inventory period, they desire that the showing shall be as favorable as possible.

More Drastic Forestry Laws

The Hon. William Finlayson, Minister of Lands and Forests for Ontario, has made an appeal to the people of Ontario to aid in having drastic laws passed to protect the timber industry of the province. He states that the public must be convinced that timber is not a capital but a crop and that it is as great a crime to destroy a crop of timber as it would be to destroy a harvest of wheat or oats. He says that in Scandinavian countries they have a law by which no man may cut one stick of timber without definite permission from a Government forester who indicates where he may cut and where he may not. The question of restoring the sadly-diminished timber crop of Ontario can be answered only by the method of reforestation. Last year the Department of Lands and Forests for Ontario sent out nine million young trees for the people to plant in the deforested regions and it is Mr. Finlayson's hope to increase this output to some fifteen or twenty million in a few years.

Canada's Big News Print Output

The investment house of R. A. Daly & Co. has published a statistical comparison of the pulp and paper producers in the Dominion. It is estimated that the total production of news print in the world in 1927 will amount to something over 6,000,000 tons. Thus Canada, with an estimated production of 2,400,000 tons, supplied well over one-third of the world's production. During 1927, about 2,000 tons per day of news print were added to the capacity of Canadian mills. Therefore, by the end of 1927, the annual daily capacity of all Canadian mills should equal 8,800 tons. During 1928 it is estimated that the total daily capacity of Canadian mills will be increased by nearly 1,300 tons. Thus, by the end of 1928, daily capacity should amount to 10,000 tons, equal to an annual production capacity of over 3,000,000 tons.

Superior Paper Mills Busy

The Superior Paper Mills, Thorold, Ont., are now running 24 hours a day on the various lines of special papers turned out by them. The company report that the prospects for the coming year look exceptionally bright. Specialty papers, white and colored, are manufactured by the mills. The C. V. Syrett Paper Company, Toronto, at the head of which is C. V. Syrett, have taken over the direct mill agency for a great number of the products of the Superior Paper Mills.

Notes and Jottings of the Trade

F. R. Thorn, of Quebec City, sales engineer of Price Bros. & Co., was in Toronto recently calling upon the members of the paper trade.

A. W. Price, of Price Bros. & Co., Quebec City, spent a few days in Toronto recently calling upon the trade.

W. H. Sherriff, of the Hodge-Sherriff Paper Company, London, England, who has been spending the past two months in Canada along with W. S. Hodge, on a visit to the Canadian offices of the firm, who are sales agents for the Wayagamack Pulp and Paper Company, is returning shortly to London where he will take charge of the London office, while W. S. Hodge, who for the last few years has been manager of the London quarters of the organization, will remain in Toronto.

Colonel C. H. L. Jones, vice-president of the Spanish River Pulp and Paper Mills, Sault Ste. Marie, Ont., and Mrs. Jones, left recently on a trip to the West Indies.

William Matheson, of Fraser Company, Ltd., Edmundston, N. B., spent a few days in Toronto lately calling upon the trade. Construction of an addition to the pulp plant of the company at Edmundston has begun.

George Winlow, of Toronto, sales manager of the Lincoln Pulp and Paper Company, Merritton, Ont., has returned from a business trip to Winnipeg, Edmondton, Calgary and other points in the West, and reports the outlook for the coming season as encouraging.

C. W. Iliff, representing John Dickinson & Co., Ltd., London, England, was in Toronto lately. Paper Sales, Ltd., Toronto, are the representatives of the firm in Canada for fancy cover papers.

George E. Challes, of Toronto, veteran representative of the Riordon Sales Corporation, Montreal, and Mrs. Challes are leaving at the beginning of the new year on an extended trip through the south of Europe. This will be the first long holiday that Mr. Challes has taken in many years and numerous friends will wish him a very pleasant jaunt.

Among the paper men who were recently visitors to Toronto were C. DeWolfe Reid, general manager of the Western Quebec Paper Mills, Limited, Montreal, George R. Gray, woods manager of the Spanish River Pulp & Paper Mills, Sault Ste. Marie, Ont.; D. D. Horne, sales manager of the Hudson Paper Co., Winnipeg, and J. A. Bothwell, of the Brompton Pulp & Paper Co., East Angus, Que., who is a former president of the Canadian Pulp and Paper Association.

ACER & CO., LIMITED

Canada Cement Building

MONTREAL, CANADA

SULPHITE PULP
(Bleached, Easy Bleaching, Strong)

MECHANICAL PULP

KRAFT PULP

KRAFT PAPER

BUILDING PAPER

Cable Address "Acerbity" Montreal

CODES
Western Union (5 letter)
A.B.C. (5th Edition)

Maintains your high standards -yet reduces your costs.

ALPHA FIBRE

for the making of fine paper

Alpha takes the place of many grades of rags in paper making. It is clean, more economical and can be used without sacrifice of quality.

Also, papers hitherto made without rag stock, can be brought to the high quality goal, by adding Alpha to the furnish in suitable proportions.

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BROWN COMPANY
founded 1852
PORTLAND, MAINE

West Virginia Pulp and Paper Company

Manufacturers of
SUPERCALENDERED
and
MACHINE FINISHED BOOK
and LITHOGRAPHIC
PAPERS

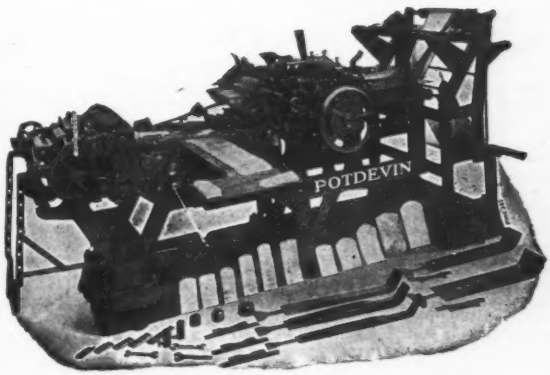
Offset, Envelope, Bond, Writing, Cover and Music Paper, High Grade Coated Book, Index Bristol, Post Card, Kraft and Label Papers.

also

Bleached Spruce Sulphite and Soda, Kraft Pulp

200 Fifth Avenue, New York — 732 Sherman Street, Chicago
503 Market St., San Francisco, Cal.
122 East 7th St., Los Angeles, Cal.
Sixth and Chestnut Sts., Philadelphia, Pa.

NEW **POTDEVIN** PRINTING
SPECIALTY BAG MACHINERY



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40 Other Models
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Phones: Windsor 7412-7413

Imports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING DECEMBER 3, 1927

SUMMARY

Cigarette paper .....285 cs.
Wall paper .....2 rolls, 95 bls., 13 cs.
Paper hangings .....30 bls., 15 cs.
News print .....2,153 rolls
Printing paper .....34 rolls, 247 cs.
Wrapping paper .....30 bdls., 160 bls., 43 cs.
Packing paper .....24 cs.
Drawing paper .....14 cs.
Filter paper .....12 cs.
Colored paper .....14 cs.
Metal paper .....30 cs.
Baryta coated paper .....136 cs.
Basic paper .....45 cs.
Surface coated paper .....131 cs.
Coated paper .....12 cs.
Tissue paper .....98 cs.
Stencil paper .....42 cs.
Cover paper .....4 cs.
Decalcomania paper .....26 cs.
Parchment paper .....10 cs.
Silk paper .....13 cs.
Envelopes .....51 cs.
Litho paper .....23 cs.
Straw board .....1,130 rolls
Straw pulp board .....171 rolls
Miscellaneous paper
160 pkgs., 687 rolls, 280 bls., 89 cs.

CIGARETTE PAPER

Liggett & Myers Tobacco Co., McKeesport, Havre, 20 cs.
De Manduit Paper Corp., McKeesport, Havre, 108 cs.
P. J. Schweitzer, Pres. Wilson, Marseilles, 129 cs.
British American Tobacco Co., Celtic, Liverpool, 28 cs.

WALL PAPER

F. J. Emmerich, Minnetonka, London, 11 bls.
F. J. Emmerich, Celtic, Liverpool, 44 bls., 2 rolls.
F. J. Emmerich, Hamburg, Hamburg, 30 bls., 2 cs.
Bendix Paper Corp., Hamburg, Hamburg, 11 cs.
Globe Shipping Co., Hamburg, Hamburg, 10 bls.

PAPER HANGINGS

W. H. S. Lloyd & Co., Carinthia, Liverpool, 7 bls.
W. H. S. Lloyd & Co., Minnetonka, London, 23 bls., 15 cs.

NEWS PRINT

Parsons & Whittemore, Inc., Sparreholm, Kotka, 709 rolls.
Ossian Ray, Sparreholm, Kotka, 111 rolls.
M. Gottesman & Co., Inc., Sparreholm, Kotka, 467 rolls.
Hudson Trading Co., Sparreholm, Kotka, 220 rolls.
Parsons & Whittemore, Inc., Dresden, Bremen, 228 rolls.
A. S. Zabriskie, Dresden, Bremen, 87 rolls.
Perkins, Goodwin & Co., Dresden, Bremen, 265 rolls.
Ossian Ray, Stockholm, Gothenburg, 4 rolls.
F. Henjes, Jr., Luossa, Hamburg, 62 rolls.

PRINTING PAPER

Walker, Goulard, Plehn Co., Dresden, Bremen, 65 cs.
National City Bank, Dresden, Bremen, 79 cs.
International Forwarding Co., Elzasier, Antwerp, 10 cs.
E. Dietzgen & Co., Volendam, Rotterdam, 73 cs.
C. Steiner, Volendam, Rotterdam, 3 cs.
C. Bruning, Volendam, Rotterdam, 12 cs.
Perkins, Goodwin & Co., Luossa, Hamburg, 34 rolls.
Dingelstedt & Co., Luossa, Hamburg, 5 cs.

WRAPPING PAPER

J. P. Heffernan Paper Co., Hamburg, Hamburg, 30 bdls.
C. K. MacAlpine & Co., Stockholm, Gothenburg, 24 bls.
Goldsmith & Co., Stockholm, Gothenburg, 136 bls.
Birn & Wachenheim, Pennland, Antwerp, 7 cs.
C. Steiner, Volendam, Rotterdam, 36 cs.

PACKING PAPER

Beekman Paper & Card Co., Pres. Harding, Bremen, 16 cs.
International Forwarding Co., A. Shipper, London, 8 cs.

DRAWING PAPER

Keuffel & Esser Co., Antonia, London, 3 cs.
H. Reeve Angel & Co., Inc., A. Shipper, London, 11 cs.

FILTER PAPER

Taiyo Trading Co., May. Maru, Kobe, 2 cs.
H. Reeve Angel & Co., Inc., A. Shipper, London, 10 cs.

COLORED PAPER

J. E. Bernard & Co., Pres. Harding, Bremen, 4 cs.
Borden Riley Paper Co., Pennland, Antwerp, 10 cs.

METAL PAPER

Hensel, Bruckman & Lorbacher, Pres. Harding, Bremen, 25 cs.
W. J. Byrnes, Hamburg, Hamburg, 5 cs.

BARYTA COATED PAPER

Globe Shipping Co., Pres. Harding, Bremen, 136 cs.

BASIC PAPER

Globe Shipping Co., Pres. Harding, Bremen, 25 cs.
American Express Co., Pennland, Antwerp, 20 cs.

SURFACE COATED PAPER

G. W. Sheldon & Co., Minnetonka, London, 2 cs.
G. W. Sheldon & Co., Hamburg, Hamburg, 7 cs.
Globe Shipping Co., Hamburg, Hamburg, 5 cs.
P. C. Zuhlke, Pennland, Antwerp, 90 cs.
Globe Shipping Co., Volendam, Rotterdam, 27 cs.

COATED PAPER

Globe Shipping Co., Hamburg, Hamburg, 12 cs.

TISSUE PAPER

F. B. Vandegrift & Co., Carinthia, Liverpool, 18 cs.
Old Master Paper & Pulp Corp., Hamburg, Hamburg, 80 cs.

STENCIL PAPER

Arlac Dry Stencil Corp., Hamburg, Hamburg, 42 cs.

COVER PAPER

International Forwarding Co., Hamburg, Hamburg, 4 cs.

DECALCOMANIA PAPER

Manhattan Decalcomania Co., Pres. Harding, Bremen, 9 cs.
L. A. Consmiller, Pres. Harding, Bremen, 9 cs.
Phoenix Shipping Co., Pres. Harding, Bremen, 1 cs.
C. W. Sellers, Hamburg, Hamburg, 2 cs.
R. F. Drakenfeld & Co., Carinthia, Liverpool, 5 cs. (duplex).

PARCHMENT PAPER

S. Gilbert, Pres. Harding, Bremen, 3 cs.
J. Beckhard, Pres. Harding, Bremen, 7 cs.

SILK PAPER

S. Gilbert, Pres. Harding, Bremen, 8 cs.
J. Beckhard, Pres. Harding, Bremen, 4 cs.
H. D. Catty & Co., Volendam, Rotterdam, 1 cs.

ENVELOPES

J. Beckhard, Pres. Harding, Bremen, 51 cs.

LITHO PAPER

J. H. & G. B. Siebold, Pres. Wilson, Hong Kong, 25 cs.

STRAW BOARD

Perkins, Goodwin & Co., Pennland, Antwerp, 70 rolls.
Haas Bros., Volendam, Rotterdam, 126 rolls.
National City Bank, Volendam, Rotterdam, 188 rolls.
A. Vuyk, Volendam, Rotterdam, 620 rolls.
State Bank, Volendam, Rotterdam, 126 rolls.

STRAW PULP BOARD

J. P. Heffernan Paper Co., Volendam, Rotterdam, 171 rolls.

MISCELLANEOUS PAPER

R. Wilson Paper Corp., Caledonia, Glasgow, 67 cs.
D. S. Walton & Co., Hamburg, Hamburg, 27 rolls, 79 pkgs.
H. Schutte & Co., Pres. Wilson, Genoa, 16 cs.
M. M. Cohen, Stockholm, Gothenburg, 27 bls.
Arkell Safety Bag Co., Stockholm, Gothenburg, 612 rolls.
Manhattan Paper Co., Stockholm, Gothenburg, 16 rolls, 253 bls.
I. E. Anderson, Stockholm, Gothenburg, 6 cs.
Heemsoth, Basse & Co., Volendam, Rotterdam, 81 pkgs.
Perkins, Goodwin & Co., Luossa, Hamburg, 32 rolls.

RAGS, BAGGINGS, ETC.

Goldman, Sachs & Co., Pres. Harding, Bremen, 300 bls. rags.
Union Waste Co., Pres. Harding, Bremen, 78 bls. threads.
Chase National Bank, Pres. Harding, Bremen, 38 bls. rags.
Darmstadt, Scott & Courtney, Pres. Harding, Bremen, 167 bls. bagging.
Castle & Overton, Inc., Ambridge, Rotterdam, 325 bls. bagging.
E. Butterworth & Co., Inc., Exeter City, Bristol, 363 bls. rags.
C. R. Spence, Exeter City, Bristol, 86 bls. rags.
American Exchange Irving Trust Co., Caledonia, Glasgow, 38 bls. paper stock.
A. H. Searle, Caledonia, Glasgow, 114 bls. paper stock.
Mutnick Bros., MacKeesport, Havre, 36 bls. rags.
E. A. Stone, MacKeesport, Havre, 28 bls. rags.
Salomon Bros. & Co., MacKeesport, Havre, 5 bls. rags.
V. Galaup, MacKeesport, Havre, 103 bls. rags.
Castle & Overton, Inc., MacKeesport, Havre, 96 bls. bagging.
A. H. Searle, MacKeesport, Havre, 78 bls. jute waste.
E. J. Keller Co., Inc., MacKeesport, Havre, 72 bls. bagging.
V. Galaup, MacKeesport, Dunkirk, 209 bls. rags.
R. Bishop Manfg. Co., MacKeesport, Dunkirk, 90 bls. rags.
Van Oppen & Co., Dresden, Bremen, 40 bls. rags.
A. W. Fenton, Inc., Dresden, Bremen, 8 bls. rags.
Chase National Bank, Dresden, Bremen, 70 bls. bagging.
National City Bank, May. Maru, Kobe, 50 bls. rags.
American Over Ocean Corp., May. Maru, Kobe, 140 bls. rags.
J. Cohen Son & Co., Antonia, London, 30 bls. flax waste.
Brown Bros. & Co., Minnetonka, London, 29 bls. rags.
State Bank, Montevideo, Barcelona, 111 bls. rags.
S. Birkenstein & Son, Montevideo, Barcelona, 257 bls. rags.
Union National Bank, Hellen, Barcelona, 377 bls. rags.
G. Carrizo, Isonzo, Genoa, 141 bls. rags.
V. Galaup, Isonzo, Naples, 54 bls. rags.
Giatte Bros., Pres. Wilson, Genoa, 20 bls. rags.
American Exchange Irving Trust Co., Elzasier, Antwerp, 90 bls. rags.
Chemical National Bank, Anjer, Barcelona, 58 bls. rags.
E. Butterworth & Co., Inc., Anjer, Genoa, 136 bls. rags.
Darmstadt, Scott & Courtney, Anjer, Genoa, 184 bls. bagging.
E. J. Keller & Co., Inc., Anjer, Genoa, 550 bls. bagging.
A. W. Fenton, Inc., Stockholm, Gothenburg, 3 bls. rags.
B. D. Kaplan, A. Shipper, London, 48 bls. rags.
Brown Bros. & Co., Romsdalshorn, Antwerp, 15 bls. rags.
Baring Bros. & Co., Romsdalshorn, Antwerp, 11 bls. rags.
B. D. Kaplan, Romsdalshorn, Antwerp, 143 bls. bagging.
Fidelity Trust Co., Romsdalshorn, Antwerp, 54 bls. jute waste.
Brown Bros. & Co., Volendam, Rotterdam, 19 bls. cuttings.
American Exchange Irving Trust Co., Volendam, Rotterdam, 53 bls. rags.
Castle & Overton, Inc., M. Arnus, Barcelona, 180 bls. rags.
Castle & Overton, Inc., M. Arnus, Barcelona, 121 bls. bagging.
American Woolstock Corp., M. Arnus, Barcelona, 37 bls. rags.
Equitable Trust Co., Luossa, Hamburg, 360 bls. rags.
Brown Bros. & Co., Capetown Maru, Hamburg, 15 bls. rags.
E. J. Keller Co., Inc., Clairton, ——, 142 bls. bagging.
E. Butterworth & Co., Inc., Clairton, Belfast, 48 bls. rags.

OLD ROPE

Brown Bros. & Co., Exeter City, Bristol, 159 coils.
Brown Bros. & Co., Montevideo, Coruna, 46 bls.
Brown Bros. & Co., Volendam, Rotterdam, 77 pkgs.
W. Schall & Co., Hellen, Barcelona, 55 bls.

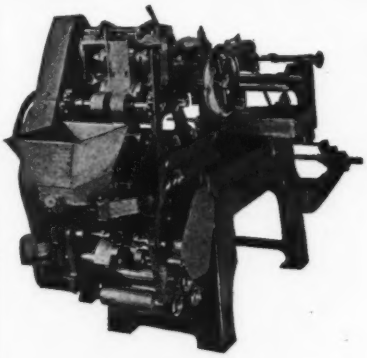
CASEIN

Equitable Trust Co., Capetown Maru, Hamburg, 665 bags, 50,000 ks.

CHINA CLAY

L. A. Salomon & Bros., Exeter City, Bristol, 80 bags, 40 casks.
C. B. Richard & Co., Exeter City, Bristol, 224 bags.

(Continued on page 76)



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Special Machinery Designed and Built

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KRAFT HURUM NORWAY SPECIAL — **"HURUM SPECIAL"** Extra Strong Kraft

KOOS BAC — **"BAMBLE"** Extra Strong Kraft

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Dayton Globe Lever Dump Valve
for Beaters

1 Replaces old fashioned flat dump valve
2 Fits any make or size beater—right or left hand
3 Positive in action—lid cannot blow open
4 Very handy and fast—just pull the lever

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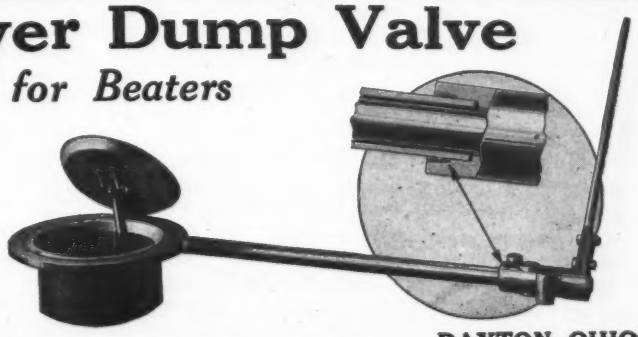

DAYTON GLOBE IRON WORKS **DAYTON, OHIO**

Imports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING DECEMBER 3, 1927

SUMMARY

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Baryta coated paper .....136 cs.
Basic paper .....45 cs.
Surface coated paper .....131 cs.
Coated paper .....12 cs.
Tissue paper .....98 cs.
Stencil paper .....42 cs.
Cover paper .....4 cs.
Decalcomania paper .....26 cs.
Parchment paper .....10 cs.
Silk paper .....13 cs.
Envelopes .....51 cs.
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Straw pulp board .....171 rolls
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British American Tobacco Co., Celtic, Liverpool, 28 cs.

WALL PAPER

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F. J. Emmerich, Celtic, Liverpool, 44 bls., 2 rolls.
F. J. Emmerich, Hamburg, Hamburg, 30 bls., 2 cs.
Bendix Paper Corp., Hamburg, Hamburg, 11 cs.
Globe Shipping Co., Hamburg, Hamburg, 10 bls.

PAPER HANGINGS

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W. H. S. Lloyd & Co., Minnetonka, London, 23 bls., 15 cs.

NEWS PRINT

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Ossian Ray, Sparreholm, Kotka, 111 rolls.
M. Gottesman & Co., Inc., Sparreholm, Kotka, 467 rolls.
Hudson Trading Co., Sparreholm, Kotka, 220 rolls.
Parsons & Whittemore, Inc., Dresden, Bremen, 228 rolls.
A. S. Zabriskie, Dresden, Bremen, 87 rolls.
Perkins, Goodwin & Co., Dresden, Bremen, 265 rolls.
Ossian Ray, Stockholm, Gothenburg, 4 rolls.
F. Henjes, Jr., Luossa, Hamburg, 62 rolls.

PRINTING PAPER

Walker, Goulard, Plehn Co., Dresden, Bremen, 65 cs.
National City Bank, Dresden, Bremen, 79 cs.
International Forwarding Co., Elzasier, Antwerp, 10 cs.
E. Dietzgen & Co., Volendam, Rotterdam, 73 cs.
C. Steiner, Volendam, Rotterdam, 3 cs.
C. Bruning, Volendam, Rotterdam, 12 cs.
Perkins, Goodwin & Co., Luossa, Hamburg, 34 rolls.
Dingelstedt & Co., Luossa, Hamburg, 5 cs.

WRAPPING PAPER

J. P. Heffernan Paper Co., Hamburg, Hamburg, 30 bdls.
C. K. MacAlpine & Co., Stockholm, Gothenburg, 24 bls.
Goldsmith & Co., Stockholm, Gothenburg, 136 bls.
Birn & Wachenheim, Pennland, Antwerp, 7 cs.
C. Steiner, Volendam, Rotterdam, 36 cs.

PACKING PAPER

Beekman Paper & Card Co., Pres. Harding, Bremen, 16 cs.
International Forwarding Co., A. Shipper, London, 8 cs.

DRAWING PAPER

Keuffel & Esser Co., Antonia, London, 3 cs.
H. Reeve Angel & Co., Inc., A. Shipper, London, 11 cs.

FILTER PAPER

Taiyo Trading Co., May. Maru, Kobe, 2 cs.
H. Reeve Angel & Co., Inc., A. Shipper, London, 10 cs.

COLORED PAPER

J. E. Bernard & Co., Pres. Harding, Bremen, 4 cs.
Borden Riley Paper Co., Pennland, Antwerp, 10 cs.

METAL PAPER

Hensel, Bruckman & Lorbacher, Pres. Harding, Bremen, 25 cs.
W. J. Byrnes, Hamburg, Hamburg, 5 cs.

BARYTA COATED PAPER

Globe Shipping Co., Pres. Harding, Bremen, 136 cs.

BASIC PAPER

Globe Shipping Co., Pres. Harding, Bremen, 25 cs.
American Express Co., Pennland, Antwerp, 20 cs.

SURFACE COATED PAPER

G. W. Sheldon & Co., Minnetonka, London, 2 cs.
G. W. Sheldon & Co., Hamburg, Hamburg, 7 cs.
Globe Shipping Co., Hamburg, Hamburg, 5 cs.
P. C. Zuhlke, Pennland, Antwerp, 90 cs.
Globe Shipping Co., Volendam, Rotterdam, 27 cs.

COATED PAPER

Globe Shipping Co., Hamburg, Hamburg, 12 cs.

TISSUE PAPER

F. B. Vandegrift & Co., Carinthia, Liverpool, 18 cs.
Old Master Paper & Pulp Corp., Hamburg, Hamburg, 80 cs.

STENCIL PAPER

Arlac Dry Stencil Corp., Hamburg, Hamburg, 42 cs.

COVER PAPER

International Forwarding Co., Hamburg, Hamburg, 4 cs.

DECALCOMANIA PAPER

Manhattan Decalcomania Co., Pres. Harding, Bremen, 9 cs.
L. A. Consmiller, Pres. Harding, Bremen, 9 cs.
Phoenix Shipping Co., Pres. Harding, Bremen, 1 cs.
C. W. Sellers, Hamburg, Hamburg, 2 cs.
R. F. Drakenfeld & Co., Carinthia, Liverpool, 5 cs. (duplex).

PARCHMENT PAPER

S. Gilbert, Pres. Harding, Bremen, 3 cs.
J. Beckhard, Pres. Harding, Bremen, 7 cs.

SILK PAPER

S. Gilbert, Pres. Harding, Bremen, 8 cs.
I. Beckhard, Pres. Harding, Bremen, 4 cs.
H. D. Catty & Co., Volendam, Rotterdam, 1 cs.

ENVELOPES

J. Beckhard, Pres. Harding, Bremen, 51 cs.

LITHO PAPER

J. H. & G. B. Siebold, Pres. Wilson, Hong Kong, 25 cs.

STRAW BOARD

Perkins, Goodwin & Co., Pennland, Antwerp, 70 rolls.
Haas Bros., Volendam, Rotterdam, 126 rolls.
National City Bank, Volendam, Rotterdam, 188 rolls.
A. Vuyk, Volendam, Rotterdam, 620 rolls.
State Bank, Volendam, Rotterdam, 126 rolls.

STRAW PULP BOARD

J. P. Heffernan Paper Co., Volendam, Rotterdam, 171 rolls.

MISCELLANEOUS PAPER

R. Wilson Paper Corp., Caledonia, Glasgow, 67 cs.
D. S. Walton & Co., Hamburg, Hamburg, 27 rolls, 79 pkgs.
H. Schutte & Co., Pres. Wilson, Genoa, 16 cs.
M. M. Cohen, Stockholm, Gothenburg, 27 bls.
Arkell Safety Bag Co., Stockholm, Gothenburg, 612 rolls.
Manhattan Paper Co., Stockholm, Gothenburg, 16 rolls, 253 bls.
I. E. Anderson, Stockholm, Gothenburg, 6 cs.
Heemsoth, Basse & Co., Volendam, Rotterdam, 81 pkgs.
Perkins, Goodwin & Co., Luossa, Hamburg, 32 rolls.

RAGS, BAGGINGS, ETC.

Goldman, Sachs & Co., Pres. Harding, Bremen, 300 bls. rags.
Union Waste Co., Pres. Harding, Bremen, 78 bls. threads.
Chase National Bank, Pres. Harding, Bremen, 38 bls. rags.
Darmstadt, Scott & Courtney, Pres. Harding, Bremen, 167 bls. bagging.
Castle & Overton, Inc., Ambridge, Rotterdam, 325 bls. bagging.
E. Butterworth & Co., Inc., Exeter City, Bristol, 363 bls. rags.
C. R. Spence, Exeter City, Bristol, 86 bls. rags.
American Exchange Irving Trust Co., Caledonia, Glasgow, 38 bls. paper stock.
A. H. Searle, Caledonia, Glasgow, 114 bls. paper stock.
Mutnick Bros., MacKeesport, Havre, 36 bls. rags.
E. A. Stone, MacKeesport, Havre, 28 bls. rags.
Salomon Bros. & Co., MacKeesport, Havre, 5 bls. rags.
V. Galaup, MacKeesport, Havre, 103 bls. rags.
Castle & Overton, Inc., MacKeesport, Havre, 96 bls. bagging.
A. H. Searle, MacKeesport, Havre, 78 bls. jute waste.
E. J. Keller Co., Inc., MacKeesport, Havre, 72 bls. bagging.
V. Galaup, MacKeesport, Dunkirk, 209 bls. rags.
R. Bishop Manfg. Co., MacKeesport, Dunkirk, 90 bls. rags.
Van Oppen & Co., Dresden, Bremen, 40 bls. rags.
A. W. Fenton, Inc., Dresden, Bremen, 8 bls. rags.
Chase National Bank, Dresden, Bremen, 70 bls. bagging.
National City Bank, May. Maru, Kobe, 50 bls. rags.
American Over Ocean Corp., May. Maru, Kobe, 140 bls. rags.
J. Cohen Son & Co., Antonia, London, 30 bls. flax waste.
Brown Bros. & Co., Minnetonka, London, 29 bls. rags.
State Bank, Montevideo, Barcelona, 111 bls. rags.
S. Birkenstein & Son, Montevideo, Barcelona, 257 bls. rags.
Union National Bank, Hellen, Barcelona, 377 bls. rags.
G. Carrizo, Isonzo, Genoa, 141 bls. rags.
V. Galaup, Isonzo, Naples, 54 bls. rags.
Giatte Bros., Pres. Wilson, Genoa, 20 bls. rags.
American Exchange Irving Trust Co., Elzasier, Antwerp, 90 bls. rags.
Chemical National Bank, Anjer, Barcelona, 58 bls. rags.
E. Butterworth & Co., Inc., Anjer, Genoa, 136 bls. rags.
Darmstadt, Scott & Courtney, Anjer, Genoa, 184 bls. bagging.
E. J. Keller & Co., Inc., Anjer, Genoa, 550 bls. bagging.
A. W. Fenton, Inc., Stockholm, Gothenburg, 3 bls. rags.
B. D. Kaplan, A. Shipper, London, 48 bls. rags.
Brown Bros. & Co., Romsdalshorn, Antwerp, 15 bls. rags.
Baring Bros. & Co., Romsdalshorn, Antwerp, 11 bls. rags.
B. D. Kaplan, Romsdalshorn, Antwerp, 143 bls. bagging.
Fidelity Trust Co., Romsdalshorn, Antwerp, 54 bls. jute waste.
Brown Bros. & Co., Volendam, Rotterdam, 19 bls. cuttings.
American Exchange Irving Trust Co., Volendam, Rotterdam, 53 bls. rags.
Castle & Overton, Inc., M. Arnus, Barcelona, 180 bls. rags.
Castle & Overton, Inc., M. Arnus, Barcelona, 121 bls. bagging.
American Woolstock Corp., M. Arnus, Barcelona, 37 bls. rags.
Equitable Trust Co., Luossa, Hamburg, 360 bls. rags.
Brown Bros. & Co., Capetown Maru, Hamburg, 15 bls. rags.
E. J. Keller Co., Inc., Clairton, ——, 142 bls. bagging.
E. Butterworth & Co., Inc., Clairton, Belfast, 48 bls. rags.

OLD ROPE

Brown Bros. & Co., Exeter City, Bristol, 159 coils.
Brown Bros. & Co., Montevideo, Coruna, 46 bls.
Brown Bros. & Co., Volendam, Rotterdam, 77 pkgs.
W. Schall & Co., Hellen, Barcelona, 55 bls.

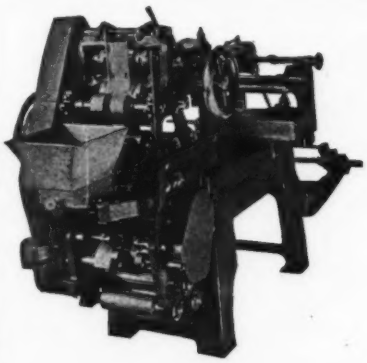
CASEIN

Equitable Trust Co., Capetown Maru, Hamburg, 665 bags, 50,000 ks.

CHINA CLAY

L. A. Salomon & Bros., Exeter City, Bristol, 80 bags, 40 casks.
C. B. Richard & Co., Exeter City, Bristol, 224 bags.

(Continued on page 76)



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4 Very handy and fast—just pull the lever

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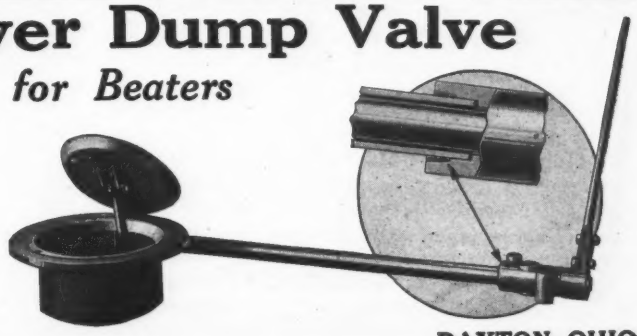

DAYTON GLOBE IRON WORKS **DAYTON, OHIO**

Imports of Paper and Paper Stock

(Continued from page 74)

WOOD PULP

Buck, Kiaer & Co., Inc., Sparreholm, Stockholm, 1,200 bls. sulphite.
Price & Pierce, Ltd., Sparreholm, Gothenburg, 971 bls. wood pulp.
Lagerloef Trading Co., Dresden, Bremen, 612 bls. wood pulp.
J. Anderson & Co., Tyrifjord, Sarpsborg, 1,140 bls. wood pulp.
Buck, Kiaer & Co., Inc., Tyrifjord, Greaker, 2,000 bls. sulphite.
Buck, Kiaer & Co., Inc., Tyrifjord, Oslo, 600 bls. kraft pulp.
Atterbury Bros., Inc., Tyrifjord, Oslo, 750 bls. wood pulp.
Buck, Kiaer & Co., Inc., Hellig Olav, Oslo, 400 bls. kraft pulp.
Perkins, Goodwin & Co., Fred. VIII, Copenhagen, 254 bls. wood pulp.
Atterbury Bros., Inc., Fred. VIII, Oslo, 500 bls. wood pulp.
Price & Pierce, Ltd., Stockholm, Gothenburg, 125 bls. wood pulp.
E. M. Sergeant & Co., Stockholm, Gothenburg, 748 bls. dry soda pulp.
Pagel, Horton & Co., Inc., Skramstad, Gefle, 4,675 bls. wood pulp.
Bulkley, Dunton & Co., Skramstad, ——, 1,825 bls. wood pulp.
J. Anderson & Co., Capetown Maru, Hamburg, 675 bls. wood pulp, 131 tons.
Castle & Overton, Inc., Luossa, Hamburg, 3,014 bls. wood pulp, 450 tons.

WOOD PULP BOARDS

Lagerloef Trading Co., Dresden, Bremen, 287 bls.
Wilkinson Bros. & Co., Inc., Stockholm, Gothenburg, 42 rolls.

WOOD PULP WADDING

Birn & Wachenheim, Volendam, Rotterdam, 110 bls.

WOOD FLOUR

B. L. Soberski, Tyrifjord, Frederickstad, 3,375 bags.
Composition Materials Co., Tyrifjord, Oslo, 20 bags.
B. L. Soberski, Fred. VIII, Oslo, 750 bags.
H. J. Baker & Bros., Volendam, Rotterdam, 500 bags.
Speiden, Whitfield & Co., Volendam, Rotterdam, 200 bags.
A. Kramer & Co., Volendam, Rotterdam, 400 bags.
State Bank, Volendam, Rotterdam, 400 bags.

BALTIMORE IMPORTS

WEEK ENDING DECEMBER 3, 1927

Equitable Trust Co., Skramstad, Norrsundet, 2,975 bls. sulphate.
Pagel, Horton & Co., Inc., Skramstad, Gefle, 7,050 bls. wood pulp.
Bulkley, Dunton & Co., Skramstad, ——, 4,940 bls. wood pulp.
W. H. Masson & Co., Clairton, Belfast, 123 bls. waste paper.
Castle & Overton, Inc., A. Von Bayer, Germany, 800 bls. wood pulp.
Castle & Overton, Inc., Kiel, Germany, 1,934 bls. wood pulp.
E. J. Keller Co., Inc., Seydlitz, Hamburg, 333 bls. wood pulp.
Buck, Kiaer & Co., Inc., Mexicano, Oslo, 600 bls. sulphite.
Buck, Kiaer & Co., Inc., Mexicano, Oslo, 200 bls. kraft pulp.
Buck, Kiaer & Co., Inc., Texas, Oslo, 800 bls. kraft pulp.
Buck, Kiaer & Co., Inc., Aggersund, Sikea, 6,000 bls. sulphite.
Buck, Kiaer & Co., Inc., Aggersund, Iggesund, 375 bls. sulphite.
Woodpulp Service Corp., Kolsnaren, Gothenburg, 500 bls. sulphite.

NORFOLK IMPORTS

WEEK ENDING DECEMBER 3, 1927

Buck, Kiaer & Co., Inc., Lygnern, Oslo, 400 bls. sulphite.

PHILADELPHIA IMPORTS

WEEK ENDING DECEMBER 3, 1927

Green, Hamilton & Co., Ambridge, Rotterdam, 59 bls. thread waste.
Equitable Trust Co., Ambridge, Rotterdam, 106 bls .rags.
S. E. Ingber & Co., Ambridge, Rotterdam, 540 bls. rags.
Brown Bros. & Co., Exeter City, Bristol, 238 bls. waste paper.
J. M. Hagy Waste Works, MacKeesport, Havre, 17 bls. rags.
Castle & Overton, Inc., MacKeesport, Havre, 404 bls. rags.
V. Galaup, MacKeesport, Havre, 114 bls. rags.
A. Hurst & Co., MacKeesport, Havre, 64 bls. rags.
Salomon Bros. & Co., MacKeesport, Havre, 35 bls. rags.
E. J. Keller Co., Inc., MacKeesport, Havre, 193 bls. rags.
E. J. Keller Co., Inc., MacKeesport, St. Nazaire, 131 bls. bagging.
Salomon Bros. & Co., MacKeesport, Dunkirk, 293 bls. rags.
E. Butterworth & Co., Inc., MacKeesport, Dunkirk, 69 bls. rags.
Fidelity Trust Co., MacKeesport, Dunkirk, 98 bls. rags.
Katzenstein & Keene, Inc., MacKeesport, Dunkirk, 163 bls. rags.
V. Galaup, MacKeesport, Dunkirk, 80 bls. rags.
Darmstadt, Scott & Courtney, MacKeesport, Dunkirk, 433 bls. rags.
Castle & Overton, Inc., MacKeesport, Dunkirk, 149 bls. rags.
C. B. Richard & Co., Isonzo, Naples, 72 bls. rags.
French American Banking Corp., Isonzo, Naples, 217 bls. rags.
Castle & Overton, Inc., Kiel, Germany, 2,762 bls. wood pulp.
Castle & Overton, Inc., Kiel, Germany, 55 bls. rags.
Castle & Overton, Inc., J. Skinner, Germany, 181 bls. rags.
Castle & Overton, Inc., City of Flint, England, 93 bls. rags.
Castle & Overton, Inc., West Eldara, Antwerp, 355 bls. rags.
E. J. Keller Co., Inc., Beemsterdyk, Amsterdam, 122 bls. rags.
Buck, Kiaer & Co., Inc., Mexicano, Oslo, 400 bls. sulphite.

BOSTON IMPORTS

WEEK ENDING DECEMBER 3, 1927

American Exchange Irving Trust Co., Pres. Wilson, Marseilles, 61 coils old rope.
Equitable Trust Co., Skramstad, Norrsundet, 10,875 bls. sulphate.
Perkins, Goodwin & Co., Natirar, Umea, 13,475 bls. sulphate.
American Exchange Irving Trust Co., Natirar, Kotka, 900 bls. wood pulp.
Buck, Kiaer & Co., Inc., Mexicano, Oslo, 2,160 bls. sulphite.
E. J. Keller Co., Inc., Pacific Maru, ——, 583 bls. rags.
Castle & Overton, Inc., West Eldara, Antwerp, 128 bls. rags.

NEW ORLEANS IMPORTS

WEEK ENDING DECEMBER 3, 1927

E. J. Keller Co., Inc., Pacific Maru, ——, 350 bls. gunnys.
Castle & Overton, Inc., Niagara, France, 295 bls. rags.

PORTLAND IMPORTS

WEEK ENDING DECEMBER 3, 1927

Lagerloef Trading Co., Natirar, Kotka, 1,826 bls. sulphite, 304 tons.

Bids for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 7, 1927.—The Government Printing Office has received the following bids for 50,000 9x12 H. F. sulphite manila envelopes: United States Envelope Company, at $12.00 per M; Mathers-Lamm Paper Company, $11.35; R. P. Andrews Paper Company, $15.85; Sherman Envelope Company, $13.57 and $17.10; Wolf-Detroit Envelope Company, $12.15.

The following bids have also been received for 7,100 pounds of 26x34—95½ 100 per cent rag white bond paper: R. P. Andrews Paper Company, at 31.5 cents per pound.

The Printing Office will receive bids on December 12 for 25,000 pounds (15,000 sheets) of No. 2 quality 25x30 binders board. Bids will also be received on the same date for 15,000 pounds (7,500 sheets) of the same No. 25.

Johns-Manville Makes St. Regis Paper Deal

The Johns-Manville Corporation has entered into an agreement with the St. Regis Paper Company whereby it will add to its sales line a new type of all-wood roofing, sheathing and insulating board to be manufactured by St. Regis Paper Company.

Through its wholly owned subsidiary, the Oswego Board Corporation, the St. Regis Paper Company will erect a plant at Oswego, N. Y., to manufacture the new product, the plant to cost about $2,000,000.

Superfine Paper Mills Make Improvements

[FROM OUR REGULAR CORRESPONDENT]

CLAYVILLE, N. Y., December 5, 1927.—The paper making industry of this place is again thriving following a long period during which little production was carried out. The Superfine Paper Mills have purchased the paper mills here and are now operating at capacity with schedules that call for day and night shifts for several months at least.

The new owners are planning extensive improvements and already construction work has been launched on a large addition which will enable a substantial increase in production. Several large papermaking machines have been purchased and they will be installed and placed as soon as the new annex is ready. A number of improvements have been made to the interior of the plant while machinery has been revamped and overhauled to place it in first class condition. It is expected that the new addition will be ready for operations early in January. About fifty hands are employed at present which number will be increased later on.

Eibel Settles Canadian Claims

The Eibel Process Company has made a satisfactory settlement of its claim against a group of Canadian news print manufacturers who have used the Eibel patent in the past. It is understood that a very substantial amount was paid.

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NEW YORK

GENERAL DYESTUFF CORPORATION

New York Market Review

Office of THE PAPER TRADE JOURNAL,
Wednesday, December 7, 1927.

Although trading in the local paper market has quietened down somewhat, due to the fact that most large consumers have filled their requirements for the season, the number of inquiries being received for future business is satisfactory and indicates that some liveliness should develop following the close of the inventory period. Prices are holding up to former levels in most instances and there has not been much talk of concessions.

News print continues in heavy demand and the increased production maintained is being freely absorbed by the publishers. The spot market continues fairly active and supplies are about sufficient to take care of the prevailing request. Contract orders for the forthcoming year are being booked at a good rate and at the same quotation which has prevailed during 1927. Withdrawals are proceeding at a normal pace.

The paper board market is in a sound condition. Box board and liner board are in particularly good request. Prices are steady to firm. Fine papers are moderately active and tissues are moving freely. The coarse paper market is fairly lively and the demand for holiday specialties is persistent. Wrapping paper is moving in heavy volume.

Mechanical Pulp

Most of the business transacted in the ground wood market during the past week was along routine lines. Production has been heavy enough of late to take care of all requirements. In the opinion of some reliable observers of the market, the outlook for the future is more encouraging. Prices are being maintained, in most instances, and shading is infrequent.

Chemical Pulp

The various grades of foreign and domestic chemical pulp were in moderate request during the past week. The tendency of the market is to become firmer, now that the closing of navigation on the Baltic is near at hand. Prices are generally unchanged from previously quoted levels. Inquiries for future business are being received in fair volume and the outlook for the coming year is bright.

Old Rope and Bagging

The old rope market has been rather quiet of late and prices are rather weak. There is a fairly steady demand for roofing bagging, at the same prices which have prevailed recently. Scrap gunny is only in moderate demand, at nominal prices. An improvement in the situation is looked for, once inventories are completed.

Rags

Some improvement has been noticed in the domestic rag market. Roofing rags have been quite active while cotton cuttings are in steady request. The mixed rag situation is practically unchanged. Imported rag supplies are scarce, due to conditions abroad. Prices remain unaltered from previously quoted levels.

Waste Paper

The waste paper market continues to exhibit a strong undertone. Old kraft machine compressed bales are still in heavy demand. Interest in mixed paper, and white news is holding up well. Heavy book and crumpled book stock are in a stronger position. Paper stock prices are generally holding up to the recently advanced levels.

Twine

With wrapping paper continuing in heavy demand, the twine market is enjoying a very active demand. The various grades will probably be in excellent request until the end of the year, at least. Prices rule steady to firm and the recent advances in cotton twine are being maintained without difficulty.

Boston Paper Market Fairly Steady

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 5, 1927.—The paper market remains fairly stable in price, but the demand is somewhat spotty. Many of the mills are understood to have filled all orders, although there is at least one notable exception. In this case the mill is sixty days behind. Kraft, which recently declined fractionally, continues at the reduced quotations, with No. 1 grade at .05½ to .06½ and No. 2 at .04½ to .05½. Southern kraft is understood to be rather weak. The box board industry is somewhat quiet. The activity among box-makers has become rather slack due to the coming inventories. More interest is expected after the turn of the year.

Mills consuming paper stock and rags are holding off as much as possible until after January 1 before buying. It is reported that mills in Holyoke, Mass., are not very active on account of conditions in the trade. Prices of old papers remain at practically the same levels.

In bagging, contract prices on gunny are expected to be lower. Both foreign and domestic manila rope are reported to be weaker on account of the small demand. Foreign manila rope is quotable at 3.00 to 3.25, compared with the previous price of 3.50 to 3.75, and domestic at 3.75 to 4.00, compared with 4.00 to 4.12½, although some are naming a range of 3.62½ to 3.75. Heavy wool tares are now quotable at 1.65, although the maximum price was recently 1.75.

In new domestic rags, several grades have declined from a quarter of a cent to a cent, in most cases a half-cent. White shirt cuttings No. 1 are quotable at .11 to .11½, and in this grade the maximum figure is down 1 cent. Unbleached are valued at .09½ to .10, fancy shirtings at .05 to .05½, and washable at .04 to .04½. In the washable the former price was .04½ flat. Blue overalls are worth .07 to .07½. Canvas is quotable at .08 to .08½, a reduction of a cent on the high side. Old domestic rags are quotable at virtually the same levels. Roofing rags particularly are reported as firm. Foreign rags are unquotably changed, except that lace curtains are at 5.00 to 5.25 compared with a former price of 5.25 to 5.50.

Columbia Mills Complete Second Machine

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., December 1, 1927.—The Columbia River Paper Mills, Vancouver, Wash., has completed installation of a second paper-making machine to be used principally for turning out fruit wrappers, although it was not put into operation in time to produce wrappers for this year's crop of apples. The two machines recently installed are at present turning out wrapping papers, according to W. B. DuBois, vice-president of the company.

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For Southern Paper Co., two orders, total 4700 H.P.
For St. Croix Paper Co. ..... 1200 H.P.
For Brown Paper Mill Co. ..... 3430 H.P.
Central Paper Co., Muskegon, Mich., four orders, total ..... 3100 H.P.
Philadelphia Paper Mfg. Co., Phila., three orders, total ..... 2400 H.P.
Jessup & Moore Paper Co., Phila., four orders, total ..... 4750 H.P.
Ontario Paper Co., Ltd.
For Daily Newspaper Co., North Tonawanda, N. Y. ..... 2034 H.P.
Filer Fibre Company, Filer City, Mich. ..... 1500 H.P.
John Lang Paper Co., Philadelphia, Pa. ..... 416 H.P.
Bayless Manufacturing Corp., Austin, Pa. ..... 1300 H.P.
Northern Board & Paper Co., San Francisco, Cal., two orders, total ..... 400 H.P.
Crown Willamette Paper Co., San Francisco, Cal., two orders, total ..... 750 H.P.
Delaware Hard Fibre Co., Wilmington, Del., two orders, total ..... 920 H.P.
Kieckhefer Container Co., Delair, N. J. ..... 1800 H.P.

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AMERICAN MADE FOR AMERICAN TRADE

AT LAST!!

"An American Coating Clay"

H. T. Brand Coating Clay*, Highest Grade Filling Clay,** being used in some of the largest paper mills in the country. Send for samples and article on ***"An American Coating Clay." Forty-two years experience in American washed clays back of this product.

Let us submit sample and quote you.

THE
EDGAR BROS. CO.
110 William St.,
NEW YORK

Miscellaneous Markets

Office of THE PAPER TRADE JOURNAL,
Wednesday, December 7, 1927.

Conditions in the local chemical market are satisfactory and a good volume of contract business for the forthcoming year was booked during the past week. Supplies continue to move into consumption at a normal rate. Prices remain steady and no radical changes are anticipated in the near future. In the opinion of many competent observers of the market the outlook for the coming year is bright.

BLANC FIXE.—The blanc fixe market is practically unchanged. Both the pulp and the powder are in fairly steady request and prices are holding up to former levels without difficulty. The pulp is selling at $60 per ton, in bulk, while the powder is quoted at from 4 cents to 4¼ cents a pound, in barrels, at works.

BLEACHING POWDER.—Demand for bleaching powder is quite active and the market is in a sound position. Contract withdrawals are moving in a normal manner for the season. Prices are unaltered. Bleaching powder is quoted at from $2 to $2.40 per 100 pounds, in large drums, at works, according to quantity.

CASEIN.—Business in the casein market shows signs of improvement. Contract shipments are going forward in satisfactory volume. Prices remain steady to firm. Domestic casein is offered at from 17 cents to 18½ cents a pound. Imported casein is still quoted at from 18 cents to 18¼ cents a pound, all in bags, car lot quantities.

CAUSTIC SODA.—Demand for caustic soda is fairly persistent. Inquiries for future business are being received in encouraging volume. Solid caustic soda is quoted at from $3 to $3.10 per 100 pounds. The flake and the ground are selling at from $3.40 to $3.50 per 100 pounds, in large drums, at works. Contract prices for 1928 are slightly lower.

CHINA CLAY.—A moderate amount of business was transacted in the china clay market during the past week. Supplies continue to move into consumption at a normal rate. Prices remain unchanged. English china clay is selling at from $15 to $25 a ton, ship side. Domestic paper makers' clay is quoted at from $8 to $9 a ton, in bulk, at mine, and pulverized at from $10 to $12 a ton.

CHLORINE.—The tone of the chlorine market is steady and the demand for this product is fairly persistent. Prices remain unaltered. Chlorine is quoted at 4 cents a pound, in tanks, or multi-unit cars, at works, on contract orders. The spot quotation ranges from 4¼ cents to 4½ cents a pound. Contract prices for next year are one-half cent lower.

ROSIN.—The undertone of the rosin market was rather weak during the past week and the demand was only moderate. Prices declined still further. At the naval stores, the grades of gum rosin used in the paper mills are now selling at from $8.10 to $8.15 per 280 pounds gross, in barrels, ex-dock. Wood rosin is quoted at from $5.80 to $6 per 280 pounds, in car lots, southern shipping points.

SALT CAKE.—The position of the salt cake market is sound and inquiries for future business are numerous. Contract shipments continue to go forward regularly. Prices remain steady and unchanged. Salt cake is quoted at from $18 to $19 a ton, in bulk, at works. Chrome salt cake is selling at from $14 to $15 a ton, in bulk, at works.

SODA ASH.—Consumption of soda ash is being maintained in good volume and the undertone of the market is firm. Supplies are moving into consumption in a normal manner. Contract prices on soda ash, in car lots, at works, are still quoted as follows: in bulk, $1.20; in bags, $1.32½; and in barrels, $1.57½. Prices for 1928 contracts are slightly lower.

STARCH.—Steadiness continues to prevail in the starch market. Demand for this product is quite active and prices are being held at the same level which has been maintained for some considerable time. Refiners are selling special paper makers' starch at $3.07 per 100 pounds, in bags, and at $3.25 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Inquiries from the paper mills for sulphate of alumina are numerous and the future outlook is promising. Large contract shipments are moving into consumption. Commercial grades of sulphate of alumina are quoted at from $1.40 to $1.45 per 100 pounds. The iron free is selling at from $2 to $2.05 per 100 pounds, in bags, at works.

SULPHUR.—Manufacturers of Sulphur are booking orders for next years business at the same prices which have prevailed during the present year. Demand from the paper mills is about normal for the season. Sulphur is still quoted at from $18 to $19 a ton, in bulk, at mine, according to quality, on contract orders. The spot quotation is $20 per ton.

TALC.—Contract withdrawals of talc are moving at a steady pace. The market during the past week was fairly active and prospects for the immediate future are excellent. Prices remain unchanged. Quotations on domestic talc range from $16 to $18 a ton, at eastern mines. French talc is offered at from $18 to $22 a ton, ship side.

New Car Puller

In the loading and unloading of railroad cars it is often necessary to have an inexpensive, practical means of moving cars.

To fill such a need a new and powerful Car Puller has been

CAR PULLER

developed and placed on the market by the Galion Iron Works and Manufacturing Company, of Galion, Ohio, as an adjunct to the Galion Skip Hoist and Galion Mono-Veyor.

This new Car Puller can be supplied with a five, seven and a half, or ten horsepower electric motor as desired.

The gear reduction is by means of machine cut steel gears running in a bath of oil in a dust proof cast iron housing of heavy, ribbed construction.

The capstan is vertical, as this type permits pulling from any direction. Due to the cut steel gearing operating in oil, long life and quiet operation are assured.

The Galion Car Puller itself needs no protection as all working parts of the Car Puller are enclosed, and a weather proof sheet metal housing protects the motor.

John Breagle Goes To West End Paper Mill

[FROM OUR REGULAR CORRESPONDENT]

CARTHAGE, N. Y., December 5, 1927.—John Breagle has been appointed superintendent of the West End Paper Mill of this place assuming his new duties on December 1. He was formerly identified with a paper mill at Natural Dam in an official capacity and is well qualified to take over the management of the local plant. Prior to taking the position at Natural Dam he was connected with the West End Paper Company as assistant superintendent. He succeeds Clark Farnum who has been identified with the company for some time. Mr. Farnum plans to assume connections immediately with interests controlled by the St. Regis Paper Company.

The

ST. REGIS PAPER COMPANY

Daily Capacity 525 TONS

Newsprint
Catalog and Directory Papers
Fibre Wrapping Papers
Packers Oiled Manila
Specialties

General Sales Office

49 Wall St., New York

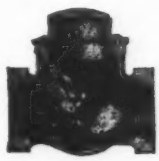
Farmers' Bank Bldg.
Pittsburgh, Pa.

Sensitive to pressures

A Jenkins Check Valve, ever-sensitive, opens easily under pressure in the pipe line. It is equally sensitive to back pressures and closes surely.

Every Jenkins Check Valve is fitted with a Jenkins renewable disc, which insures long life, and takes up wear throughout the valves.

Jenkins Check Valves are furnished in bronze and iron in horizontal, swing, angle and vertical types, in standard and extra heavy patterns. Obtainable through supply houses everywhere.



Sectional view, Fig. 352, screwed, Jenkins Standard Bronze Swing Check Valve

JENKINS BROS.
80 White Street .....New York, N. Y.
524 Atlantic Avenue ....Boston, Mass.
133 No. Seventh Street Philadelphia, Pa.
646 Washington Boulevard Chicago, Ill.
JENKINS BROS., Limited
Montreal, Canada London, England

Always marked with the "Diamond"
Jenkins Valves
SINCE 1864

Dietz Toilet Paper Machines

For making Toilet and Paper Towel Rolls
(With or without perforations)

Self Adjusting — Easy to Operate

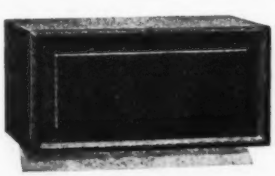
Also

AUTOMATIC TUBE MACHINES

Manufacturers of Sanitary Crepe Towel Machines, Slitting and Rewinding Machines, Drop Roll Slitting Machines, Photo Mount Beveling Machines, Rotary Card Cutting Machines, etc.
Correspondence solicited

DIETZ MACHINE WORKS

126-128 W. Fontaine Street
Cor. Waterloo St. (between Front & Second St.)
and below Diamond St.
Phila., Penna., U. S. A.



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Norcor Pressed Steel Dispensing Cabinet

Standard Cabinets for Paper Towels, Napkins and Toilets. Special cabinets designed to order. Metal Stamping of any type. Figures submitted upon receipt of specifications.

Stamping Division

NORTHERN CORRUGATING CO.

Green Bay, Wisconsin

Market Quotations

Quoted by Hepburn & Co., 74 Broadway, N. Y. City, to whom all inquiry for quotations on these or any other Securities is referred.

BONDS	BID	OFFERED
Advance Bag & Paper, 7s 1943	105	107
A. P. W. Pulp & Power, 7s 1945	101	102
American Writing Paper, 6s 1947	80	82
Bastrap Pulp & Paper, 6½s 1940	100	103
British Columbia Pulp & Paper, 6s 1950	85	90*
Beaver Products Corp., 7½s 1942	106	109
Bedford Pulp & Paper, 6½s 1942	98½	None
Brown Paper Co., 1st 5½s 1946	96½	99
Bryant Paper Co., 6s 1942	100½	102
Cape Breton Pulp & Paper, 6s 1932	101	103
Central Paper, 7s 1933	85	None
Central Paper Serial 6, 6½s 1942	89	...
Champion Coated Paper, 6s 1926 to 1932	99	...
Champion Fibre, 8s 1930	100	...
Champion Paper Corpn., 1st 6s 1945	95	97
Continental Paper Products, 6½s 1943	88	91½
Cornell Wood Prod., 7½s 1937	100	104*
Crown Willamette Paper, 6s 1951	100	102
Donnaconna Paper, 6s 1940	101	102½
Dells Paper & Pulp Serial, 6s 1926-38	*95	...
Eastern Mfg. Co., 7s 1938	89	91
Eddy Paper, 7½s 1931	101	103
Escanaba Paper Serial, 6s 1928	99¾	...
Filer Fibre Serial, 7s 1926-39	95	...
Fort Orange Paper, 7s 1942	99	102
Fox River Paper, 7s 1931	99	...
Gair Company, 5½s 1942	96	99
Gilbert Paper Co., 6½s 1926-29	91	None
Hammermill Paper, 6s 1939	100	103*
Hoberg Paper & Fibre, 7s 1937	94½	96
Itaska Paper & Prairie River Power, J+5½s 1926-38	99	101
Itaska Paper, 1st 6s 1933-38	99	101
Kalamazoo Veg. Parchment, 6s 1938	98	...
Marinette & Menominee, 7½s 1936	100	103
Menasha Printing & Carton, 6½s 1939	99½	...
Monroe Paper Products, 7½s 1932	96	...
Munising Paper, 6s 1927-36	96	100
Nekoosa Edwards, 1st Ref. 6s 1928 to 1942	96	99*
Orono Pulp & Paper, 6s 1943	98	...
Orono Pulp & Paper, 5s 1941	94	...
Oswego Falls Corp., 6s 1941	98	100*
Oxford Paper, 6s 1947	104	...
Paepcke Paper Mills, 7s 1930	99	None
Parsons Pulp & Lumber, 7s 1928	97	...
Parker Young Co., 6½s 1944	96½	98½
Paterson Parchment Paper, 6s 1938	100½	102
Penobscot Chemical Fibre, 6s 1942	98	...
Queens City Paper, 7s 1932	95	100*
Richardson Co., 6s 1938	100	...
River Raisin Paper, 6s 1936	96	...
Spanish River Pulp & Paper, 8s 1941	108	110
Stevens & Thompson Paper, 6s 1942	93	95
St. Anne Paper, 6½s 1946	99	101
St. Croix Paper, 5s 1926-37	95	98*
St. Regis Paper Serial, 6½s 1926-35	99½	101
Tait Paper & Color Industries, 6s 1934	90	95
Taggart Bros. Co., 6s 1944	94	97
Ticonderoga Pulp & Paper, 5s 1930	94	98
Ticonderoga Pulp & Paper, 6s 1940	99	101
Warren (The S. D.) Company, 6s 1945	99	101
Wotab Paper, 6½s 1943	102	...
Westfield River Paper, 7s 1926-43	90	...
Whitaker Paper, 7s 1942	106	108

STOCKS	BID	ASKED
American Box Board, Pfd.	8	10
American Box Board, Com.	8	10
Am. Tissue Mills, 7% Pfd.	90	100
British Columbia P. & P., Pfd.	65	70
Brompton Pulp & Paper, 8% Pfd.	93	98*
Brown Corpn., 7% Pfd.	97	100*
Champion Fibre, 7% Pfd.	105	...
Diem & Wing, 7% Cum. Pfd.	90	...
Donnaconna Paper, Com.	65	70
Donnaconna Paper, Pfd.	100	103
Eastern Mfg. Co., 1st Pfd.	34	37
Great Northern Paper, Com.	70	75
Hammermill Paper, 7% Pfd.	105	110
Hinde & Dauch, Com.	135	...
Hinde & Dauch, Pfd.	100	...
Holyoke Card & Paper	150	None
Marathon Paper Mills, Com.	125	...
Midwest Box Co., Pfd. 8%	97	99
Midwest Box Co., Pfd. 6%	90	92
Louis De Jonge Co., 7% Pfd.	93	96
Oxford Papers, Com.	160	170
Oxford Paper Co., Pfd.	175	...
Penobscot Chemical Fibre, Com.	65	75*
Richardson Co., 7% Pfd.	104	...
Rubberoid Company	74	77
Seaman Container, Class B (par $1)	1	None Off.
Seaman Paper Co.	Wanted	None Off.
St. Croix Paper	150	170
St. Regis Paper Co., 7% Cum. Pfd.	101½	104½
Westfield River Paper Co., 1st Pfd.	Wanted	None Off.
West Virginia Pulp and Paper, Com.	50	55
West Virginia Pulp and Paper, Pfd.	100	103
Whittaker Paper, 7% Cum. Pfd.	98	103

* Nominal.

Paper

(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	9.00	@45.00
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub sized	10.00	@15.00
Engine Sized	8.00	@11.00
News—		
Rolls, contract	3.25	@ —
Rolls, transient	3.25	@ 3.50
Sheets	3.65	@ 3.85
Side Runs	3.00	@ 3.75
Book, Cased—		
S. & S. C.	6.35	@ 7.75
M. F.	6.25	@ 7.75
Coated and Enamel	8.00	@15.00
Lithograph	8.00	@15.00
Tissues—Per Ream—		
White No. 1	.75	@ 1.00
Anti-Tarnish	1.10	@ 1.90
Colored	1.00	@ 2.00
White No. 2	.75	@ .85
Kraft	.90	@ 1.00
Manila	.75	@ .85
Kraft—		
No. 1 Domestic	6.25	@ 6.50
No. 2 Domestic	5.25	@ 5.50
Southern	4.25	@ 4.50
Imported	6.50	@ 7.00
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.25
Fibre Papers—		
No. 1 Fibre	5.00	@ 5.50
No. 2 Fibre	4.75	@ 5.25
Common Bogus	2.75	@ 3.00
Screenings	3.00	@ 3.25
Card Middles	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs.	13.00	@16.00
Bleached, basis 20 lbs.	15.00	@16.00

(Delivered New York)

Boards—per ton—		
News	50.00	@52.50
Straw	53.50	@57.50
Chip	47.50	@50.00
Binders' Boards	70.00	@75.00
Sgl. Mla. Ll. Chip	57.50	@60.00
Wood Pulp	80.00	@85.00
Container	67.50	@72.50

Mechanical Pulp

(Ex-Dock)

No. 1 Imported—		
Moist	28.00	@30.00
Dry	32.00	@34.00

(F. o. b. Mill)

No. 1 Domestic	26.00	@30.00
Screenings	15.00	@20.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.40	@ 4.50
Easy Bleaching	2.65	@ 2.80
No. 1 strong unbleached	2.40	@ 2.65
Mitscherlich unbleached	2.55	@ 3.25
No. 2 strong unbleached	2.30	@ 2.40
No. 1 Kraft	2.65	@ 2.75
No. 2 Kraft	2.40	@ 2.50
Sulphate—		
Bleached	3.65	@ 3.85

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.20	@ 4.75
Easy Bleaching Sulphite	2.60	@ 2.75
News Sulphite	2.40	@ 2.65
Mitscherlich	3.25	@ 3.70
Kraft (Domestic)	2.60	@ 3.30
Soda Bleached	3.25	@ 3.50
Sulphate Screenings—		
Coarse	.75	@ .85
Refined	1.50	@ 1.85

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	11.75	@12.25
New White, No. 2	8.00	@ 8.50
Silesias No. 1	7.25	@ 7.75
New Unbleached	10.50	@11.00
Washables	4.25	@ 4.75
Fancy	5.50	@ 6.00
Blue Overall	6.75	@ 7.25
New Blue Prints	5.25	@ 5.50
New Soft Blacks	5.25	@ 5.75
Mixed Khaki Cuttings	4.75	@ 5.25
Pink Corset Cuttings	8.00	@ 8.50
O. D. Khaki Cuttings	5.25	@ 5.75
Men's Corduroy	3.75	@ 4.25
New Mixed Blacks	3.50	@ 3.75

Old Rags

White, No. 1—		
Repacked	5.75	@ 6.50
Miscellaneous	4.75	@ 5.25
White, No. 2—		
Repacked	3.25	@ 3.75
Miscellaneous	2.75	@ 3.00
St. Soiled, White	2.25	@ 2.40
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.75	@ 2.00
Black Stockings	3.25	@ 3.75
Roofing Rags—		
Cloth Strippings	1.70	@ 1.80
No. 1	1.70	@ 1.80
No. 2	1.50	@ 1.60
No. 3	1.30	@ 1.40
No. 4	1.25	@ 1.35
No. 5A	.95	@ 1.05

Foreign Rags

New Light Silesias	7.00	@ 7.50
Light Flannelettes	7.75	@ 8.50
Unbleached Cottons	10.00	@11.00
New White Cuttings	10.50	@11.50
New Light Oxfords	7.00	@ 7.50
New Light Prints	5.50	@ 6.50
New Mixed Cuttings	3.00	@ 3.50
New Dark Cuttings	2.75	@ 3.25
No. 1 White Linens	7.25	@ 8.00
No. 2 White Linens	5.50	@ 6.25
No. 3 White Linens	4.50	@ 5.00
No. 4 White Linens	3.00	@ 3.50
Old Extra Light Prints	2.75	@ 3.25
Ord. Light Prints	2.25	@ 2.50
Med. Light Prints	1.90	@ 2.10
Dutch Blue Cottons	2.25	@ 2.50
German Blue Linens	2.50	@ 2.75
German Blue Cottons	2.00	@ 2.25
Checks and Blues	1.75	@ 2.00
Lindsay Garments	1.85	@ 1.95
Dark Cottons	1.65	@ 1.70
Shoppery	1.55	@ 1.60
French Blues	2.25	@ 2.50

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.70	@ 1.80
Domestic	1.80	@ 1.90
Wool Tares, light	1.60	@ 1.70
Wool Tares, heavy	1.60	@ 1.70
Bright Bagging	1.60	@ 1.70
Small Mixed Rope	1.30	@ 1.50
Manila Rope—		
Foreign	3.25	@ 3.65
Domestic	4.00	@ 4.25
New Burlap Cut	2.75	@ 3.00
Hessian Jute Threads—		
Foreign	3.50	@ 4.00
Domestic	3.25	@ 3.50

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, White, No. 1	3.40	@ 3.65
Hard, White, No. 2	2.90	@ 3.05
Soft, White, No. 1	2.90	@ 3.10
Flat Stock—		
Stitchless	1.35	@ 1.40
Overissue Mag.	1.30	@ 1.35
Solid Flat Book	1.25	@ 1.30
Crumpled No. 1	.90	@ 1.00
Solid Book Ledger	1.90	@ 2.10
Ledger Stock	1.70	@ 1.75
New B. B. Chips	.65	@ .75
Manilas—		
New Env. Cut	2.40	@ 2.60
New Cuttings	1.60	@ 1.85
Extra No. 1 old	1.25	@ 1.35
Print	.85	@ .95
Container	.70	@ .80
Bogus Wrapper	.75	@ .85
Old Kraft Machine Compressed bales	2.10	@ 2.20
News—		
No. 1 White News	1.75	@ 1.85
Strictly Overissue	.85	@ .90
Strictly Folded	.70	@ .75
No. 1 Mixed Paper	.55	@ .60
Common paper	.35	@ .45

Specify

KRADIAFIN TUBES

for air-heating and air-cooling units

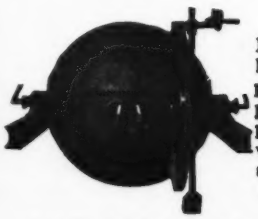
They have 6 to 10 times as much surface as plain tubes of same size and their use insures greater capacities with fewer tubes.

½" to 6"—High or low pressure—Lengths up to 15 feet. Plain or flanged ends—With or without headers—Quantity Production.

These tubes will be on display at the N. Y. power show, Dec. 5-10.

SCHUTTE & KOERTING CO., 1255 N. 12th Street PHILADELPHIA, PA.

SINCE 1887



Biggs Globe and Cylinder Rotary Bleaching Boilers have become known in every part of the world as standard paper-plant equipment. Repeated installations indicate very positively the complete satisfaction of our old customers.

THE BIGGS BOILER WORKS CO.
AKRON, 20, OHIO

Fourdrinier Wires, all widths up to 300 inches

DIMOND WIRES

NEUMEYER & DIMOND
Established 1904
82-92 Beaver St. New York

SAVEALLS AMERICAN CONTINUOUS FILTER DECKERS
THICKENERS UNITED FILTERS CORP. HAZLETON, PA. BLEACH WASHERS

THE WATERBURY FELT CO.
Skaneateles Falls, N. Y.
FELTS AND JACKETS
Highest Quality—Prompt Service

Manufacturers of the
FAMOUS 5 X C JACKETS
FOR
FAST RUNNING MACHINES
They Satisfy!

Bailey Meter Company
2041 East 46th St., Cleveland, Ohio.
Specialising in
Power Plant Metering Equipment

A more uniform stock refinement with less power consumption per ton of stock prepared is possible with the BALL BEARING TYPE APPLETON JORDAN
WRITE TODAY FOR BOOKLET - 5 POINTS OF IMPROVED JORDAN PERFORMANCE
THE APPLETON MACHINE COMPANY - APPLETON, WIS.

Long Distance Phones
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MENDELSON BROS.
Paper Stock Co.

Paper Manufacturers' Supplies

910 So. Michigan Ave. Chicago, Ill.

GENERAL Aluminum Sulphate CHEMICAL

GENERAL CHEMICAL COMPANY 40 RECTOR STREET, NEW YORK

Twines

(F. o. b. Mill)

Cotton—			
No. 1	.39	@	.40
No. 2	.37	@	.38
No. 3	.36	@	.37
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrapping, 3-6 Ply—			
No. 1	.21	@	.23
No. 2	.20	@	.22
Tube Rope—			
4-ply and larger	.18	@	.19
Fine Tube Yarn—			
5-ply and larger	.23	@	.27
4-ply	.24	@	.28
3-ply	.26	@	.30
Unfinished India—			
Basis	.16	@	.17
Paper Makers Twine			
Balls	.13	@	.15
Box Twine, 2-3 ply	.17	@	.19
Jute Rope	.21	@	.23
Ameri. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.18	@	.20
No. 2 Basis	.16	@	.18
Sisal Lath Yarn—			
No. 1	.16	@	.18
No. 2	.14	@	.16
Manila Rope	.24	@	.26

CHICAGO

All Rag Bond	.35	@	.41
No. 1 Rag Bond	.25	@	.35
No. 2 Rag Bond	.14	@	.25
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
News—Roll, mill	.03½	@	.04¼
News—Sheets, mill	.03¾	@	.04¾
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	.05¾	@	.06¼
Southern Kraft	.04½	@	.05
No. 2 Kraft	.05	@	.05¼
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue—			
24x36 Sheet	.07	@	.07¼
White Tissue—			
20x30 Sheet	.07¼	@	.07½
Boards, per ton—			
(Delivered Central Territory)			
Plain Chip	45.00	@	—
Solid News	47.50	@	—
Manila Lined Chip	55.00	@	—
Container Lined—			
(Delivered Central Territory)			
85 Test	65.00	@	70.00
100 Test	70.00	@	—

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.80	@	2.90
White Env. Cuttings	3.60	@	3.70
No. 1 Soft Shavings	2.50	@	2.60
No. 1 Mixed	1.00	@	1.05
No. 2 Mixed	.95	@	1.00
Ledger & Writings	1.55	@	1.65
Solid Books	1.20	@	1.30
Blanks	1.75	@	1.80
Krafts	1.90	@	2.05
New Kraft Cuts	2.25	@	2.35
Manila Envelope Cuttings	2.00	@	2.10
Ex. No. 1 Manila	1.55	@	1.65
Print Manila	.90	@	1.00
Folded News (overissue)	.60	@	.70
Old Newspapers—			
No. 1	.65	@	.70
No. 2	.60	@	.65
Mixed Papers—			
No. 1	.70	@	.80
Roofing Stocks—			
(F. o. b. Chicago, net cash)			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

(F. o. b. Mill)

Bonds	.07	@	.40
Ledgers	.11	@	.40
Writings—			
Superfine	.13	@	.18
Extra fine	—	@	.22
Fine	.20	@	.26½
Fine, No. 2	.16	@	.25
Fine, No. 3	.12	@	.20
Book, M. F.	.06¾	@	.0
Book, S. S. & C.	.06	@	.07½
Book, Coated	.11	@	.16
Coated Lithograph	.09	@	.12
Label	.09	@	.12
News	.03¾	@	.04
No. 1 Jute Manila	.09½	@	—
Manila Sul., No. 1	.04½	@	.06
Manila, No. 2	.04	@	.04½
No. 2 Kraft	.05	@	.05¾
No. 1 Kraft	.06	@	.06¾
Common Bogus	.02¾	@	—
Straw Board	60.00	@	65.00
News Board	47.50	@	50.00
Chip Board	42.50	@	45.00
Wood Pulp Board	4.50	@	5.00
(Carload Lots)			
Binder Boards—			
No. 1, per ton	85.00	@	90.00
No. 2, per ton	70.00	@	75.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	66.00	@	68.00
Slaters	70.00	@	72.00
Best Tarred, 1-ply (per roll)	1.85	@	1.95
Best Tarred, 2-ply (per roll)	1.55	@	1.70
Best Tarred, 3-ply	2.10	@	2.15
No. 1 Mixed Paper	.65	@	.70

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.11½	@	.12
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07½	@	.08
Black Silesia, soft	.05	@	.05½
New Unbleached	.10½	@	.11
Washable	.04	@	.04½
Fancy	.05½	@	.06
Cottons—according to grades—			
Blue Overall	.07½	@	.08
New Blue	—	@	.04
New Black Soft	.05½	@	.06
New Light Seconds	.03	@	.03½
Khaki Cuttings	.04½	@	.05
Corduroy	.03	@	.03¾
New Canvas	.08	@	.09½
New Black Mixed	.05	@	.05½

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.75	@	2.00
Domestic	1.75	@	2.00
Manila Rope	3.50	@	4.00
Sisal Rope	1.25	@	2.00
Mixed Rope	1.10	@	1.25
Scrap Burlaps	1.50	@	1.75
Wool Tares, heavy	3.00	@	3.50
Mixed Strings	1.25	@	1.35
No. 1, New Light Burlap	2.50	@	2.75
New Burlap Cuttings	—	@	2.50

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	3.50	@	3.60
No. 2 Hard White	3.00	@	3.25
No. 1 Soft White	2.75	@	3.00
No. 2 Soft White	1.90	@	2.00
No. 1 Mixed	1.50	@	1.60
No. 2 Mixed	.90	@	1.00
Solid Ledger Stock	1.90	@	2.00
Writing Paper	1.65	@	1.75
No. 1 Books, heavy	1.25	@	1.30
No. 2 Books, light	.85	@	.90
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.60
Print Manila	1.15	@	1.20
Container Manila	.90	@	1.00
Old Kraft	2.00	@	2.20
Common Paper	.60	@	.65
No. 1 Mixed Paper	.65	@	.80
Straw Board, Chip	.70	@	.80
Binders Board, Chip	.70	@	.80
Overissue News	.80	@	.90
Old Newspaper	.65	@	.70

Domestic Rags (Old)

White, No. 1—			
Repacked	4.50	@	5.25
Miscellaneous	3.50	@	4.00
White, No. 2—			
Repacked	.02¼	@	.02¾
Miscellaneous	.02	@	.02¼
Thirds and Blues—			
Repacked	2.50	@	2.75
Miscellaneous	1.60	@	1.75
Black Stockings	3.50	@	3.75
Roofing Stock—			
No. 1	1.75	@	1.80
No. 2	1.60	@	—
No. 3	—	@	1.35
No. 4	1.10	@	1.20
No. 5A	.90	@	1.00
B	.80	@	.90
C	.80	@	.90

BOSTON

Paper

(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.15
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.07	@	.20
Superfines	.11	@	.31
News	.03½	@	.04
Book, Super	.06	@	.09
Book, M. F.	.05¾	@	.08½
Book, Coated	.08½	@	.20
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¼	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.05½	@	.06½
No. 2 Kraft	.04¼	@	.05½
Common Bogus	.02¼	@	.02¾
Delivered New England points			
Straw Board, rolls .009	57.50		
Straw Board in Sheets, basis 35s to 70s	54.50	@	55.00
Filled News Board	50.00		
Chip Board	47.50		
Single Manila Pulp lined board	55.00	@	60.00
Single White, patent coated board bender	75.00	@	82.50
Wood Pulp Board	80.00	@	85.00
Binder Boards	70.00	@	75.00
(F. o. b. Mill)			
Tarred Felts—			
Regular, carload lots	65.00	@	—

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.75	@	3.10
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	2.60	@	—
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	1.95	@	2.00
No. 1 Books, Heavy	1.35	@	1.45
No. 1 Books, Light	—	@	1.15
Manila Env. Cuttings	2.00	@	2.25
No. 1 Old Manila	1.40	@	1.60
White Blank News	1.75	@	—
Old Kraft	2.00	@	2.20
Print Manila	.70	@	.80
No. 1 Mixed Paper	.55	@	.62½
Overissue News	.70	@	.80
Old Newspapers	.65	@	—
Box Board, Chip	.65	@	—

Bagging

(Price f. o. b. Boston)

Gunny No. 1—			
Foreign	1.40	@	1.50
Domestic	1.50	@	1.60
Manila Rope and Strings—			
Foreign	3.50	@	3.75
Foreign	3.00	@	3.25
Domestic	3.75	@	4.00
Mixed Strings	.90	@	1.00
Scrap Burlaps	1.37½	@	1.50
Wool Tares, heavy	1.65	@	—
New Burlap Cutting	2.25	@	2.37½

Domestic Rags (New)

(Price f. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.11	@	.11½
Silesias, No. 1	.07	@	.07½
New Unbleached	.09½	@	.10
Fancy	.05	@	.05½
Washable	.04	@	.04½
Cottons—According to Blue Overalls	.07	@	.07½
Blue Overalls	.07½	@	—
New Black, soft	.04	@	.04¼
Khaki Cuttings	.04¼	@	.05¼
Corduroy	.03	@	.03½
New Canvas	.08	@	.08½

Domestic Rags (Old)

(Price f. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	5.50	@	5.75
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Thirds and Blues—			
Repacked	2.00	@	2.12½
Miscellaneous	1.75	@	1.90
Roofing Stock—			
No. 1	1.60	@	—
No. 2	1.40	@	—
No. 3	1.00	@	—
No. 4	1.00	@	1.10

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.65	@	—
New No. 1 Shirt Cuttings	11.00	@	11.50
Dutch Blues	2.00	@	—
Lace Curtains	5.00	@	5.25
New Checks & Blues	4.50	@	4.65
Old Fustians	1.80	@	—

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¾	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
News f. o. b. Mills—			
Rolls (carloads)	3.25	@	—
Sheets (carloads)	3.75	@	—
Sheets (2 tons or over)	4.00	@	—
Book—			
No. 1 M. F. (carloads)	7.75	@	—
No. 2 M. F. (carloads)	7.50	@	—
No. 3 M. F. (carloads)	7.25	@	—
No. 1 S. C. (carloads)	8.25	@	—
No. 2 S. C. (carloads)	8.00	@	—
No. 3 S. C. (carloads)	7.75	@	—
No. 1 Coated and Litho	14.50	@	—
No. 2 Coated and Litho	13.50	@	—
No. 3 Coated and Litho	12.75	@	—
Coated tinted	.15	@	—
Wrapping—			
Rag Brown	4.85	@	—
White Rag	5.25	@	—
"B" Manila	5.65	@	—
No. 1 Manila	6.65	@	—
Fiber	6.65	@	—
Kraft, M. F.	7.20	@	—
M. G.	7.35	@	—

Pulp

(F. o. b. Mill)

Ground wood	25.00	@	28.00
Sulphite easy bleaching	58.00	@	61.00
Sulphite news grade	55.00	@	58.00
Sulphite, bleached	75.00	@	—
Sulphate	65.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.00	@	—
Soft White Book Shavings	3.00	@	—
White Blk, News	1.50	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.25	@	—
Light and Crumpled Book Stock	1.10	@	—
Ledgers and Writings	1.50	@	—
Solid Ledgers	1.50	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.80	@	—
Strictly Folded	.47½	@	.53¾
No. 1 Mixed Paper	.60	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.12	@	.12¾
Fancy Shirt Cuttings	.06	@	.06¾

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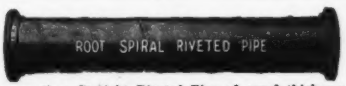

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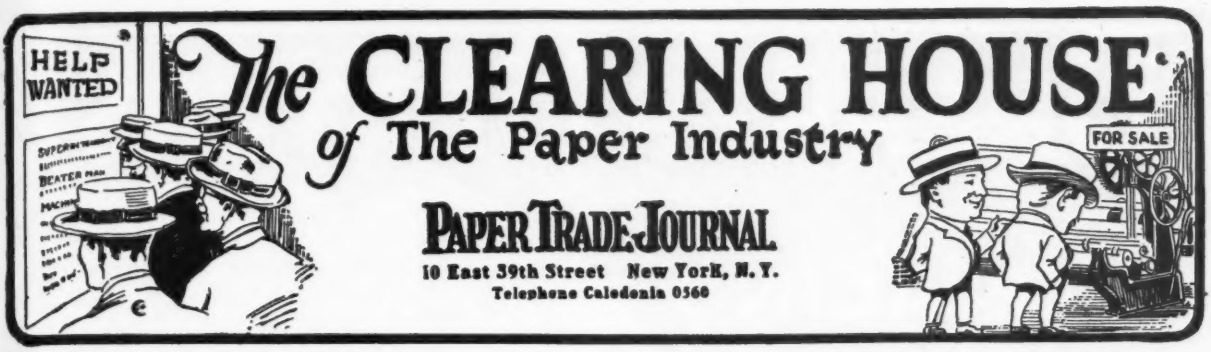

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WANTED—An experienced adjuster on a Lockport machine, both flat and square; also on a Potdevin S O S. State experience and salary expected. Steady position for the right man. All communications will be held strictly confidential. Address, Box 27-502, care Paper Trade Journal. tf.

IF YOU are open to overtures for new connection, and qualified for a salary between $2,500 and $25,000, your response to this announcement is invited. The undersigned provides a thoroughly organized service, of recognized standing and reputation, through which preliminaries are negotiated confidentially for positions of the calibre indicated. The procedure is individualized to each client's personal requirements; your identity covered and present position protected. Established seventeen years. Send only name and address for details. R. W. Bixby, Inc., 117 Downtown Building, Buffalo, New York. tf.

SALESMAN for pulp and paper mill machinery wanted. Give full details in first letter. Address, Box 27-738, care Paper Trade Journal tf.

WE ARE looking for a mechanical or chemical engineer between the ages of 26 and 32, who has had experience in paper mill construction, machine design and technical control work. Apply by letter, giving full information concerning age, family status, education, experience, and salary desired. PERSONNEL DIRECTOR, Care Scott Paper Co., Chester, Penna. D-8

WANTED—For Southern Kraft mill—machine tenders, back tenders, and third hands. Give age, experience, reference. Address, Box 27-729, care Paper Trade Journal. D-15

MACHINE TENDER WANTED—Running board machine on high grade test liners and box board. State experience with names of mills, also age. Address, Box 27-732, care Paper Trade Journal. J-12

SALESMAN—Experienced and commanding trade in wrapping, paper and other grades. Exceptional opportunity for capable man. Sylvester S. Garrett, 259 So. Third St., Philadelphia, Pa. D-15

WANTED—First-class steady, reliable Yankee tissue machine tender. Mill located in middle west. Address, Box 27-767, care Paper Trade Journal. D-22

WANTED—First-class engineer with broad experience in design of paper making machinery and paper mill equipment. One with actual experience of paper mill requirements preferred. State in detail experience, qualifications, age and salary required. Applications will be treated in strictest confidence. Address, Box 27-768, care Paper Trade Journal. D-8

HELP WANTED

WANTED AT ONCE—Cylinder machine tender experienced on test board; excellent working conditions for steady man; no lost time; references required. Address, Box 27-756, care Paper Trade Journal. D-8

PAPER MILL machinery designer wanted. State experience, salary expected. Address, Box 27-718, care Paper Trade Journal. tf.

COLOR MAN—Experienced on sulphite bonds and ledgers. Must know dyes and be good on matching colors. Give fully your experience and salary desired in first letter. Address, Box 27-766, care Paper Trade Journal. D-15

WANTED—Machine tender; boxboard and container; fast job. Two tour mill. New York State. Address, Box 27-761, care Paper Trade Journal. D-8

SITUATIONS WANTED

CREDIT MANAGER-BOOKKEEPER: Young man, seven years experience with large paper concern, desires new connection with opportunity for advancement. Address, Box 27-532, care Paper Trade Journal. D-8

SUPERINTENDENT—Trained in the manufacture of tissues, all grades, plain and creped; high grade Kraft papers, converting specialties, crepes, waxing, crepe towels, and Kraft, waxed Kraft. Address, Box 27-563, care Paper Trade Journal. D-8

FELT SUPERINTENDENT—Ten years with representative mill making dry felt and flooring. Desires change. Capable of getting production and quality. Best references. Address, Box 27-523, care Paper Trade Journal, tf.

ASSISTANT SUPERINTENDENT — College graduate, chemist, nine years practical experience and research in rag fine writing papermaking and specialties, desires position with opportunity for advancement. Address, Box 27-320, care Paper Trade Journal. tf.

MILL CONNECTION WANTED—Capable experienced salesman desires mill connection. Years of experience in the sales of both coarse and fine paper. Willing to travel. Highest credentials as to ability and integrity. Address, Box 27-490, care Paper Trade Journal. tf.

POSITION as tour boss, night superintendent or boss machine tender. Now employed, wants to make change. Experienced all grades box, test, container, and the better boards. References. Address, Box 27-771, care Paper Trade Journal. D-8

WANTED—A position as tour boss or machine tender. Up on all kinds of box or test boards. Can give good references. Address, Box 27-769, care Paper Trade Journal. tf.

SITUATIONS WANTED

WANTED—Position as superintendent or foreman of mill making binders, leather and other boards. Middle-aged man. Good at construction and repairs. Address, Box 27-668, care Paper Trade Journal. D-8

POSITION WANTED—Superintendent or foreman; chip board or wrapper mill. Experienced at construction and remodeling. Eastern states preferred. Address, Box 27-669, care Paper Trade Journal. D-8

SUPERINTENDENT—Experienced in all grades of box board, container, liner, test stock, etc. Can produce quality and production. A-1 on repairs and handle help successfully. Will go anywhere. Best of references. Address, Box 27-705, care Paper Trade Journal. D-29

SUPERINTENDENT would like position with mill making tissue, plain, colored, or waxing papers, toilet and toweling papers. Am a hustler, can get results. Good on construction, have had wide experience in starting new mills as well as operating old mills. Address, Box 27-734, care Paper Trade Journal. D-15

POSITION as superintendent or assistant. 17 years experience on all grades of felt roofing; 4 years experience on continuous beater systems. Address, Box 27-735, care Paper Trade Journal. D-15

EXECUTIVE, WITH 15 YEARS EXPERIENCE IN HANDLING SALES OF LARGE WRAPPING PAPER HOUSE. ALSO SOME MILL EXPERIENCE, SEEKS A CHANGE EITHER WITH JOBBER OR MILL. HIGHEST PERSONAL AND BUSINESS REFERENCES CAN BE FURNISHED. ADDRESS, BOX 27-743, CARE PAPER TRADE JOURNAL. D-8

POSITION WANTED—Boss beater engineer. Now employed, but would like to make a change. Would accept a position as either boss beater engineer or beater engineer. 15 years experience beating and coloring book, bond, writing, envelope, music, catalog, halftone and all kinds of specialties. Have also sutdied paper making with the I. C. S. Could come at once anywhere in the U. S. A. Address, Box 27-745, care Paper Trade Journal. D-22

COATING FOREMAN, experienced on single and double coaters, expert on metallics, gold, silver, colors, book, glaze, lithograph. Capable of producing coated paper of quality. Can furnish best of references. Address, Box 27-750, care Paper Trade Journal. D-8

SUPERINTENDENT AVAILABLE FOR CONNECTION. PRACTICAL OPERATOR. A PAPER MAKER. UP-TO-DATE FOURDRINIER AND CYLINDER MACHINES. CAN GET RESULTS. HAVE HAD REPUTABLE CONNECTIONS. SOLICIT CORRESPONDENCE. ADDRESS, BOX 27-774, CARE PAPER TRADE JOURNAL. D-15

BREAKER BEATERS

REPLACING SHREDDERS FOR USE ON LAP STOCK

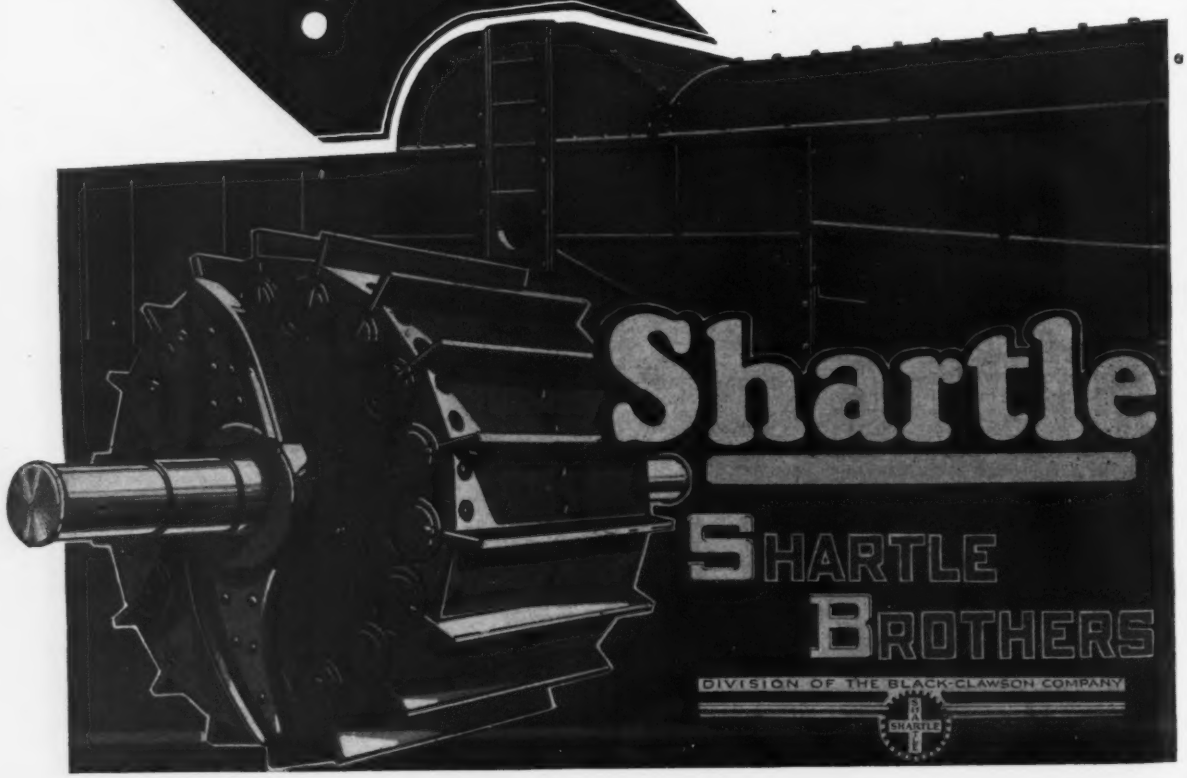
Do you operate shredders on your lap stock? If so, a SHARTLE BREAKER BEATER will take the place of your shredders, and do the work at a big saving in horse power and in labor—also improve the quality of your product.

What's more, the SHARTLE BREAKER is built so rugged that it can handle frozen laps with ease—is doing so in numerous plants in season.

Shartle engineers stand ready to make a detailed layout for you without expense to you, or any obligation whatsoever.

And, the management would be perfectly willing to place a SHARTLE BREAKER in your mill and agree to refund the full purchase price, should the installation not prove satisfactory for the job.

Shartle Brothers Machine Co.
MIDDLETOWN, OHIO



SITUATIONS WANTED

SALESMAN—Position wanted as New York sales man for paper mill by young man with long experience in this market. Address, Box 27-759, care Paper Trade Journal. D-8

BOSS MACHINE TENDER and machine tender. Experienced news print, book and M. G. specialties, Kraft and sulphite, all grades. M/F, S/C, M.G, W/F. Address, Box 27-746, care Paper Trade Journal. D-15

CYLINDER MACHINE TENDER—Good on all kinds of stock; steady and sober. Address, Box 27-747, care Paper Trade Journal. D-15

SUPERINTENDENT desires to make change. Cylinder or Fourdrinier mill making waxings, crepe, napkins and toilet papers. Address, Box 27-749, care Paper Trade Journal. tf.

MACHINE TENDER wants position. 26 years experience running Fourdrinier machine on most all grades of paper. Married and settled. Will go anywhere. Address, Box 27-770, care Paper Trade Journal. D-15

SALES AGENT, with office and sales force, would like to get direct representation from a manufacturer of a quality line for the paper mills and book binders. Have a large following in users of beater room equipment and machine knives; territory centering in Philadelphia and covering Eastern Pennsylvania, New Jersey and Delaware. Address, Box 27-772, care Paper Trade Journal. D-29

MAN with thorough knowledge of greaseproof and glassine paper wants position with reliable company. For further information address Box 27-775, care Paper Trade Journal. D-15

PULP AND PAPER MILL ENGINEER—Mills contemplating alterations and extensions can have plans made up and work supervised by competent engineer with many years experience. References furnished. Address, Box 27-776, care Paper Trade Journal. D-29

SALES MANAGER for concern manufacturing beater room equipment and machine knives desires to make a change. Thoroughly experienced salesman and manager and can produce business. Would like to connect with manufacturer who desires increased business and who can handle large accounts. Address, Box 27-773, care Paper Trade Journal. D-29

MISCELLANEOUS

MILL REPRESENTATIVES—Two capable paper salesmen about to open New York sales office solicit correspondence with paper manufacturers desiring New York representation. Address, Box 27-728, care Paper Trade Journal. D-8

SEND YOUR ODD LOT LIST of coarse and fine papers together with samples to Goldman Paper & Paper Stock Co., 414 So. Front Street, Philadelphia, Pa. tf.

WANTED—Mill ends and job lots in rolls or flats in any quantity, all grades. Also boards. Joseph Goldstein & Sons, 1302-9 N. Halsted Street, Chicago, Illinois. tf.

CLARK MANUFACTURING COMPANY, Holyoke, Mass. Telephone 1828. Builders of cylinder moulds, couch and felt rolls, dandy rolls. We cover dandies and cylinders tight, for fast running machines. 3-5-27

WANTED—Side or odd lot rolls ten to ninety pound basis. The larger the quantity the better we like it. Address, Box 27-481, care Paper Trade Journal. tf.

WANTED

WANTED—2 W. & P. Pulpers, 2 Filter Presses and 1 Rogers Wet Machine. Address, Box 27-285, care Paper Trade Journal. tf.

WANTED—Rewinder to handle sheet not less than 50" or more than 72" wide. Address, Box 27-671, care Paper Trade Journal. tf.

INTERESTED IN Slitter and Rewinder, 44" to 60". Goldman Paper & Paper Stock Co., 414 So. Front Street, Philadelphia, Pa. D-8

WANTED

WANTED — Envelope Machine — 6¾"—Smith machine preferred; must be in first-class condition. Submit samples of envelopes and state best price. Address, Box 27-736, care Paper Trade Journal. D-8

WANTED TO BUY—Special Lots, or overrun—all grades of paper. Lutz Paper Co., 17 E. 42nd Street, New York City. e.o.w.12/31/27

WANTED—One watertight Metal Tank approximately 6 ft. in diameter, 5 ft. deep and 3/8" to 5/16" thickness of metal. Address, Box 27-780, care Paper Trade Journal. D-15

WANTED—Paper Bag Factory: To take over all or part interest—must be in fair working condition. All information to be kept strictly confidential. Address, Box 27-777, care Paper Trade Journal. D-8

WANTED—Cylinder machine trimming anywhere from 90" to 120". Address, Box 27-778, care Paper Trade Journal. D-15

FOR SALE

FOR SALE—Second-hand 1200 lb. wood tub N. & W. beater. In good condition. The Noble & Wood Machine Co., Hoosick Falls, N. Y tf

HELP WANTED

WANTED—A man to run Shartle Breaker Beater; two tours; wages $7.00 per day. Address, Box 27-779, care Paper Trade Journal. D-15

MACHINIST-MILLWRIGHT WANTED—For small paper mill located near Buffalo. Must be familiar with and competent to do all necessary repairs. Advise age, experience, references, and salary expected, in first letter. Address, Box 27-760, care Paper Trade Journal. D-8

Turn Your Surplus Equipment Into Profit

Let us help you dispose of the excess machinery and equipment you have on hand.

The PAPER TRADE JOURNAL reaches the very buyers who would be interested in your idle machinery and there is no better medium for reaching them than through its Clearing House columns. An ad listing your excess equipment will quickly dispose of it and turn it into cash.

FOR SALE

1—64" super-calender about three years old. Equipped with Cutler-Hammer clutch.

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FOR SALE

FOR SALE
GOOD EQUIPMENT

1—Smith and Winchester Cylinder Drying Machine, two cylinders, 39—42" diameter, 88" face dryers, one stack calenders, reel and slitter.

2—9' dia., 30' long Manitowoc Incinerators with drives.

1—Yaryan Triple effect Horizontal type Evaporator with vacuum pump, condenser and heater. Capacity 1,200 gal. per hr.

9—9' 6" dia., 18' high Diffusers.

1—84" Chipper, 3 knives.

1—83" Chipper, 3 knives.

1—750 gal. Fairbanks Morse Fire Pump, 16" x 9" x 12".

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Cable Herenco

Telephone Whitehall 5243

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Two Noble & Wood Pulp Breakers; 1200 lbs. capacity

Used only a short time

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6—4' x 30' American Process.
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1—W. & P. size 17-200 gals.
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1—3' 6" x 12' Allis Chalmers.
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5—5' x 22' Allis Chalmers.
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1—6' x 22' Gates.

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1—3' x 8' Glens Falls.
4—4' x 18' Glens Falls.
4—4' x 20' Glens Falls.

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1—Stokes Triple Effect, 1,000 sq. ft.
1—Scott Triple Effect, 1,350 sq. ft.
1—Swenson Triple Effect, 1,750 sq. ft.
2—Swenson Triple Effect, 3,300 sq. ft.

ROTARY FILTERS

3—6' x 4' Oliver.
2—6' x 6' Oliver.
2—6' x 6' Oliver, Acid Proof.
1—8' x 8' Oliver, Acid Proof.

SEND US YOUR INQUIRIES
WE BUY YOUR IDLE EQUIPMENT

CONSOLIDATED PRODUCTS COMPANY, INC.

15 PARK ROW NEW YORK, N. Y.

Barclay 0083

FOR SALE

One excellent 90" trim Rice, Barton and Fales Paper Machine complete with Marshall Drive; three 10 plate screens, wire 60' x 106"; two sets Presses; 24 - 48" diameter Dryers; two Stacks Calenders; Reel; Winder—complete in A-1 condition. Immediate delivery. Also Brownell Variable Speed Engine with Paper Machine. Also three 2,000 lb. Jones Cypress Wood Tub Beaters. Good condition. Full details and photographs upon request.

All at very reasonable price.

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261 Broadway, New York City—Telephone Barclay 8020

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OUR MOTTO—"Service First"

CHOCOLATE GLASSINE

basis 25 lb.

21 cases 25½ x 38 @ 7½c lb.
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Case lots only.

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Drexel Bldg.,
Philadelphia, Pa. D-29

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1—84" Black-Clawson single Cutter.
1—140" Dillon duplex with Moore & White Layboy.
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1—52" Moore & White Cutter with Moore & White Layboy and Backstands.
1—48" Moore & White Cutter with Moore & White Layboy and Backstands.
1—42" Moore & White Cutter with Moore & White Layboy and Backstands.
1—82" Heavy duty Hamblet Single Cutter with 24 roll Backstands.
2—58" Moore & White Single Cutters.
4—54" Moore & White Single Cutters.
6—48" Moore & White Single Cutters.
1—57" Hamblet Duplex Cutter, Heavy Duty.

The Shartle Brothers Machine Co.,
Middletown, Ohio tf.

Paper Mill Machine Repair Shop LATHE

J. J. McCabe Patented "2-in-1" LATHE
Used slightly—but same condition as NEW
26/48" Swing with extra set of raising blocks for 38/60" Swing
Complete with regular equipment as furnished with NEW LATHE
Your Bulletin is Waiting.

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1—Heavy duty Beloit 114" Paster.
4—Jones Washers. Iron tubs. Rolls 67 x 60. Good shape.
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Several White cedar stuff chests, A-1 shape.
1—48"—3 cylinder machine.
1—70"—2 cylinder machine.
Several Chippers.
Four deck Beloit frames. These are modern and extra heavy.
One Ryther & Pringle Multiple Saw Slasher. Will cut 32'.
One Farrel Roll Grinder.
One No. 2 Lannoye Pulper.
One 61" Holyoke Super-Calender.

The Shartle Brothers Machine Company
Middletown, Ohio tf.

Salesman—Executive

To develop and handle sales for Tissue Mill. Must be a constructive result getter. Will have chance to invest substantially in business if successful.

An unusual opportunity for the right man.

Address, Box 27-764, care Paper Trade Journal. D-29

FOR SALE

2—7 x 16 Shartle Triplex Pumps, in good condition.

Address, Box 27-753, care
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Moore & White Co.
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Valley Iron Works Co.

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Schutte & Koerting Co.

AIR HEATING TUBES
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Graton & Knight Co.

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Little, Inc., Arthur D.
Paper Mill Laboratories
United States Testing Lab.

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English China Clays

for

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VALUATIONS

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Bleached Soda Pulp

Manufactured and sold by

COLUMBIAN PAPER COMPANY

BUENA VISTA VIRGINIA

Samples and Prices upon application

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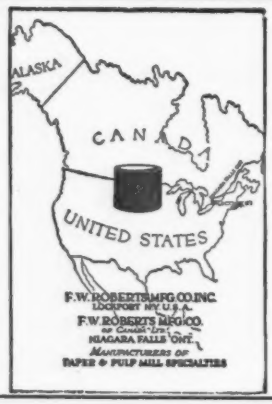

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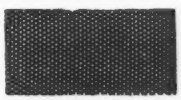
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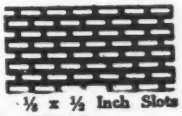
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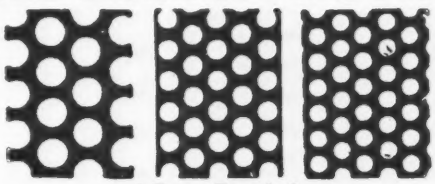

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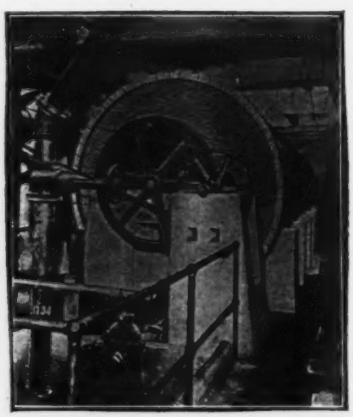

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